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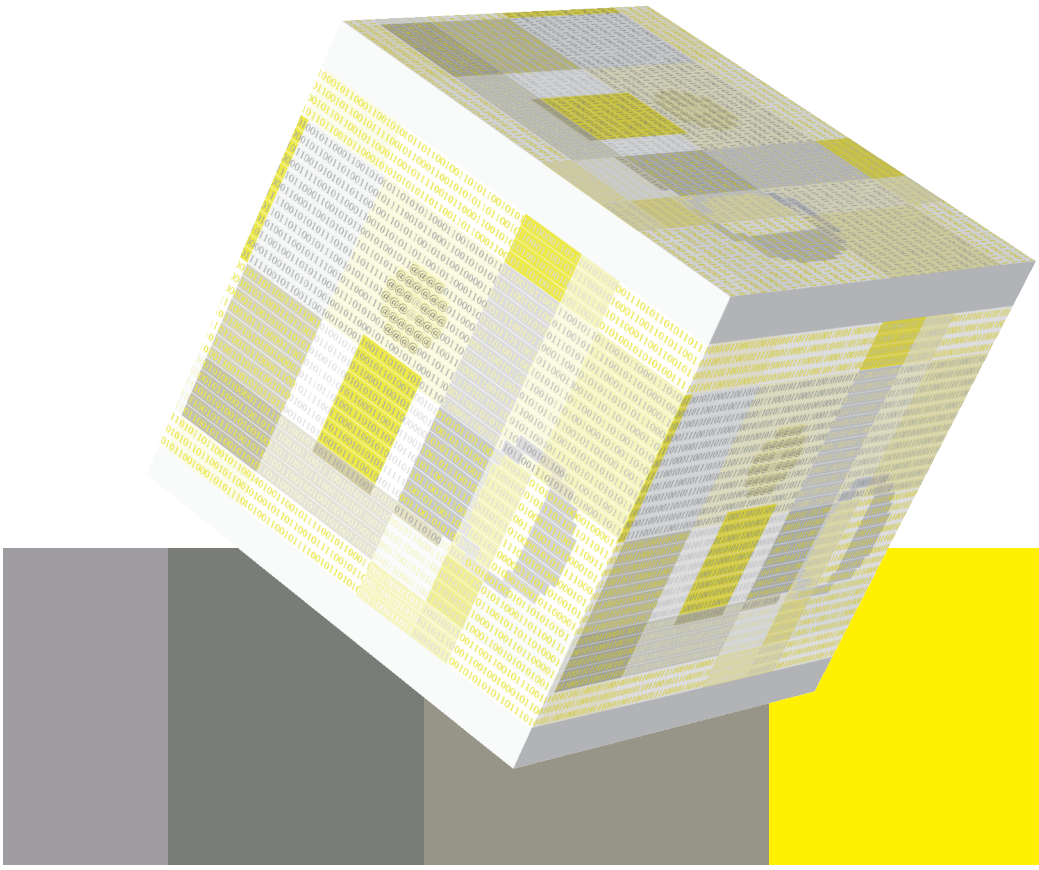

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教育資料與圖書館學，始於1970年3月創刊之**教育資料科學月刊**，其間於1980年9月更名為**教育資料科學**，並改以季刊發行。自1982年9月起易今名。另自2016年11月起，改以一年出版三期（3月、7月、11月）。現由淡江大學出版中心出版，淡江大學資訊與圖書館學系和覺生紀念圖書館合作策劃編輯。本刊為國際學術期刊，2008年獲國科會學術期刊評比為第一級，2015年獲科技部人文社會科學研究中心評定為教育學門專業類一級期刊。並廣為海內外知名資料庫所收錄(如下英文所列)。

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本刊係採開放存取（Open Access）與商業資料庫付費途徑，雙軌發行之國際學術期刊，兼具電子版與紙本之平行出版模式。本刊除秉持學術規範與同儕評閱精神外，亦積極邁向InfoLibrary寓意之學域整合與資訊數位化理念，以反映當代圖書資訊學研究趨勢、圖書館典藏內容與應用服務為本；且以探討國內外相關學術領域之理論與實務發展，包括圖書館學、資訊科學與科技、書業與出版研究等，並旁及符合圖書資訊應用發展之教學科技與資訊傳播論述。

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EDITORIAL

Diversity, Equity and Inclusion in *JoEMLS*

The Open Access (OA) policies of scholarly journals have undergone significant evolution over several decades. Notably, in 2012, attention was directed toward evaluating the extent of openness in various journal OA policies ("How open is it?"). By 2023, the focus had shifted to advocating for the assessment of equity in journal publishing practices ("How equitable is it?"). This decade-long shift reflects the broader emphasis in academic publishing on the principles of Diversity, Equity, and Inclusion (DEI). The academic publishing sector has progressed from merely assessing the "degree of openness" to examining the broader implications of openness, including its impact on journal influence and reputation, the quality of submitted manuscripts, the protection of authors' rights, and the sustainability of peer review models. In more recent years, there has been a concerted effort to integrate DEI principles, with particular emphasis on addressing equity issues in journal publishing to ensure fair and inclusive practices.

The influence of DEI has led organizations such as the Council of Science Editors to propose best practices for fostering DEI in academic publishing. These recommendations urge publishers to establish transparent accountability mechanisms and guidelines for DEI, as well as to issue formal statements of intent to promote diversity and inclusivity within the scientific publishing ecosystem. Publishers are further encouraged to mitigate potential biases and discrimination within editorial workflows and to ensure equitable representation and fairness among editorial boards, peer reviewers, authors, and journal staff.[1] The 2023 advocacy for evaluating "How equitable is it?" highlights that equity concerns extend beyond individual authors to encompass all stakeholders within the scholarly communication ecosystem, including parent institutions, libraries, consortia, funders, publishers, and service providers. This initiative seeks to promote knowledge sharing, address systemic inequities, and explore how journal payment models, such as article processing charges, influence equitable participation in scholarship. It also serves as a critical reference for stakeholders making investment decisions in journal publishing activities.[2]

[1] Council of Science Editors, "2.7 Diversity, Equity, and Inclusion in Scholarly Publishing," accessed March 25, 2025, https://www.councilscienceeditors.org/2-7-diversity--equity--and-inclusion-in-scholarly-publishing.

[2] cOAlition S, "How Equitable Is It?: A Draft Framework for Assessing Scholarly Communication Models of the Axis of Equity," accessed March 25, 2025, https://www.coalition-s.org/wp-content/uploads/2024/09/HowEquitableIsIt_Framework_criteria_definitions.pdf.

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Nonetheless, challenges and debates have inevitably arisen throughout this developmental process. For instance, do open and equitable publishing policies inherently conflict with one another? Does granting authors absolute copyright while limiting publishers' rights constitute "equity"? Furthermore, who is responsible for safeguarding the "equity" of publishers?

The management of scholarly journal publishing should strive to create a scholarly environment that is more open, equitable, and inclusive for both authors and publishers. Such an environment should also foster sustained attention to DEI principles. Over the years, this journal has implemented practices aligned with DEI objectives, including long summary in English with appropriate citations (in Chinese article), dual citation formats (APA and Chicago/Turabian), and Open Peer Review. Looking ahead, the journal remains committed to regularly evaluating its policies, refining its practices, and cultivating its unique culture to identify areas for improvement. This process will involve setting strategic directions and taking concrete actions to address any potential inequities or biases.

In this issue (Volume 62, Issue 1), the *JoEMLS* processed seven submissions, of which three articles were accepted, resulting in a rejection rate of 57%. The published articles include: "YouTube University: Redefining Teaching and Research in Academia" by Bushra Said Issa AL Jamii et al.; "Errata Publishing in Library and Information Science Journals From 2001 to 2020 and Citation Patterns of Published Errata: Analysis and Insights" by Yu-Wei Chang and Mei-Chin Meng; and "A Case Study on the Information Ethics Gap among College Students in Taiwan: A Repeated Cross-Sectional Analysis (2008–2021)" by Tao-Ming Chuang. The journal extends its sincere gratitude to the authors for their valuable contributions.

Jeong-Yeou Chiu
JoEMLS Editor-in-Chief

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編者言

*JoEMLS*的多元、公平與包容

學術期刊的開放取用（Open Access）政策已經歷數十年。在這發展期間值得注意的是它曾於2012年專注在衡鑑各個期刊OA政策的開放程度有多高？（How open is it?），繼而於2023年倡導追蹤期刊的公平性如何？（How equitable is it?）十年來的轉變，呼應了近年來學術出版傳播之大環境所強調的「多元、公平、包容」（Diversity, Equity, Inclusion，以下簡稱DEI）精神訴求。學術期刊出版界已由前期的「開放程度」評估，進而連帶探討「開放性」對期刊的影響力與聲譽、文章稿件品質、著作發表對作者權益，以及同儕評閱的品質與永續性模式的影響層面。直至後期，積極推動DEI觀念，更是針對期刊出版的公平合理（equity）問題提出更多的保障。

DEI影響所及，科學編輯人協會（Council of Science Editors）就曾建議學術出版的DEI最佳實踐政策：出版者除了必須公開透明地建立DEI責任制與相關指南，也應該發表意向聲明以促進科學出版中的多元共融；避免期刊編務過程中，受到各種可能發生的偏見和歧視之影響，並確保期刊編輯委員會、同儕評閱者、作者和期刊工作人員之間的公平與代表性。[1] 事實上，2023年所倡議的“How equitable is it”，其「公平合理」議題並非僅針對「作者」，而是就各利益關係人（母機構、圖書館、聯盟組織、創辦贊助者、出版者、相關供應商）之學術傳播模式下，為促進知識分享與改善環境，同時也極力探究期刊的付費模式如何影響「學術的公平參與」（equitable participation in scholarship）之爭議而起，更是為了便利各個利益關係人（考量學術傳播生態系統）投資期刊出版活動時之決策參考。[2] 然而，在其發展過程裡卻也難免出現疑義，例如：既開放且公平的期刊出版政策下，兩者是否有衝突？又如：讓「作者擁有絕對的著作權，抑制出版者的權益就是「公平」嗎？出版者的「公平」該由誰保護？

學術期刊的出版管理，理應可以創造一個（作者與出版者）雙方皆更開放、公平和包容性的學術園地，並且也是一個足以持續不斷地關注DEI議題的友善環境。歷年來，教育資料與圖書館學（*JoEMLS*）所實踐的英文長摘要對照、引文格式APA、Chicago（Turabian）雙軌接納、開放式同儕評閱（Open Peer Review）等制度，也與DEI之精神訴求一致。日後，本刊仍將致力於定期評估我

[1] Council of Science Editors, “2.7 Diversity, Equity, and Inclusion in Scholarly Publishing,” accessed March 25, 2025, https://www.councilscienceeditors.org/2-7-diversity--equity--and-inclusion-in-scholarly-publishing.

[2] cOAlition S, “How Equitable Is It?: A Draft Framework for Assessing Scholarly Communication Models of the Axis of Equity,” accessed March 25, 2025, https://www.coalition-s.org/wp-content/uploads/2024/09/HowEquitableIsIt_Framework_criteria_definitions.pdf.

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們期刊政策、實踐理想和塑造自有文化，以便確認需要改進之方向，訂定方針並採取行動，解決可能存在的任何不公平或偏見。

這一卷期（62卷1期）計處理七篇投稿件，收錄其中三篇文章，退稿率為57%。此次順利刊出的大作有Bushra Said Issa AL Jamiia等作者的YouTube University: Redefining Teaching and Research in Academia」、張郁蔚與蒙美金「2001-2020年圖書資訊學期刊勘誤文章之出版及被引用原因之分析與見解」以及莊道明「台灣大學生資訊倫理落差：重複橫斷面之個案研究（2008-2021）」，本刊特此致謝。

邱炯友
教育資料與圖書館學 主編

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Research Article

YouTube University: Redefining Teaching and Research in Academia

Bushra Said Issa AL Jamii[a] Amna A'Bdallah Khamis Al Subhi[b] Mohammed Muneerali Thottoli[c*]

Abstract

Purpose: To examine the effect of YouTube videos (content, accessibility, analytics, perceptions of YouTube videos, features of YouTube videos, and digital literacy) on teaching and research among faculties. Design/methodology/approach: A quantitative research design based on a survey method was used. The sample was targeted at faculty members engaged in teaching and research at several colleges and universities in Oman. Partial least squares structural equation modeling (SEM-PLS) software has been used to analyze the data. Findings: Digital literacy, perceptions of YouTube videos, and YouTube Video content significantly impact teaching and research. Features of YouTube videos have a moderate effect on Teaching and research. However, other factors show no significant effect on teaching and research. YouTube video content mediates the relationship between Perceptions on YouTube Videos and teaching research; and Digital Literacy on YouTube Videos and teaching research. Research limitations/implications: The study-research approach offers a new perspective on the intricate ways that faculty use YouTube videos for teaching and research. This study's results were derived from a limited sample size of respondents in the Al-Dhakhlia region of Oman. Practical implications: The study's findings will improve the dissemination of YouTube videos as self-directed learners for teaching and research and assist academics, YouTubers, and universities in better tuning for public education. Originality/value: There is a lack of research among faculty members; it remains unknown how YouTube videos are used for research and teaching in Oman. This study is the first of its kind to investigate how YouTube videos are used in teaching and research.

Keywords: *YouTube videos, Teaching, Research, Academia, Education*

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Introduction

YouTube is the most popular social media platform for finding interesting videos (Kurniawan et al., 2024). With over two billion users and 500 hours of newly posted videos per hour, YouTube is the second most popular website in the world (Sui et al., 2022). YouTube videos are largely used by faculty and teachers, as they prefer YouTube clips more than others for educational purposes. That is why YouTube is considered the most widespread among social media. YouTube videos have their advantages, but they also have challenges, including issues with the video's length, internet connection, and video quality (D'Aquila et al., 2019). The way the teacher explains the lesson may not be understood in traditional classes, which has led to a preference for YouTube explanations. The teacher does not perform a course in a way that attracts YouTube viewers, which may make them feel bored watching and not benefit, and thus leads to wasting time (Chiou et al., 2020).

YouTube does not have features such as interaction among faculty however, it can provide a platform to answer others' questions (Hanif & Saleem, 2023). YouTube systems are affected by phone IDs, fake users, breaches of confidentiality, and threats. Therefore, threats must be addressed to preserve caller characteristics using fraudulent accounts and some YouTube detection tools to enhance the effectiveness of the network (Mahmood et al., 2023).

There is a lack of facilities and infrastructure, proficiency in using technology, readiness, and lecturers' ability to upload the material that will be taught and presented via YouTube (Sofya et al., 2022). Age and gender have a direct impact on the use of technology is reflected in levels of performance (Cabezas et al., 2017).

The field of study is constantly changing, so lecturers must check that the content they provide is up-to-date (Fyfield, 2022). Sufficient quality or detail to understand teaching concepts well so that the concepts can be understood easily and accurately without the need to search for additional information. Therefore, there can be a lot of variation in the information provided between videos (Ali et al., 2022). Teachers are distracted by comments and side content on YouTube, which affects their explanation and the performance of the lesson well (Yang et al., 2023). Some videos are not subtitled into the required language, which may pose an obstacle for those who are not fluent in the original language of the video (Bitzenbauer et al., 2024). The problem educators have when selecting appropriate videos is that sometimes the language and substance are impolite and irrelevant (Fatimah et al., 2023). A few additional issues with YouTube education, especially in terms of technology, are also apparent (Albahiri & Alhaj, 2020; Burke et al., 2009). The instructors must make their own decisions

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about what is appropriate for their classrooms because YouTube does not have categories that distinguish professional videos.

By promoting research and innovation, Oman's Vision 2040 places a strong emphasis on equitable and high-quality education through the use of technology. Instead of using social media sites like Facebook and Twitter to communicate and express their thoughts, users can like, comment on, and share YouTube videos. The majority of earlier research was on examining how potential teachers and students were influenced by YouTube learning videos (Kusmaryono & Basir, 2024; Yang et al., 2024). Technology is given prominence in the curriculum at all educational levels in the Omani educational system (Al-Habsi et al., 2022). However, there is a lack of studies focusing on examining the effect of YouTube videos on teaching and research among faculties. Using a self-structured questionnaire, the researchers collected the perceptions of university and college faculty members in Oman concerning their use of YouTube videos for research and teaching to determine the trends around the above-mentioned challenges. Hence the objectives of this study are to examine how YouTube video content (YVC); YouTube video accessibility (YVAcc); YouTube video analytics (YVAna); perceptions of YouTube videos (PYV); features of YouTube videos (FYV); and digital literacy on YouTube videos (DYV) effect on teaching and research (TR) among faculties.

The remaining sections of this study include a section, review of the literature, methodology, analysis, discussion, conclusion, limitations, and future research directions.

Review of Literature

YouTube Videos on Teaching and Research Among Faculties

The YouTube video content signifies that real-time discussions are facilitated by YouTube videos, including vlogs and live videos, which improve teaching and research. Sangeetha and Anu (2022) examined at recent developments in sentiment analysis of YouTube videos, and found that social media and emotions are important factors in the popularity and dissemination of video content. The accessibility of YouTube videos ensures its widespread availability, makes subtitles easier to understand, and supports YouTube access by educational institutions. Many renowned websites, Asper Rosas-Villena et al. (2015), do not have sufficient accessibility features for video players, underscoring the need to make sure they are easy to use. Additionally, teachers can start using YouTube to improve their professional competency and understand new teaching techniques (Adu-Marfo et al., 2024). YouTube video analytics includes statistics on the number of views, the length of the videos, and how many Likes and Dislikes they have had. To identify video genres and other particular information, effective

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video analytics frequently combine variables including dominant color, auditory, visual quality, and redundancy factors (Sreeja & Kovoor, 2023). Perception of YouTube videos reflects individual belief that YouTube is a valuable resource for enhancing knowledge creation, belief in supplemental to traditional learning, and they have their own technical skills to use the YouTube features. Viewers' perceptions of YouTube's credibility may be impacted by the language style and thematic references of its sidebars (Zimmermann & Jucks, 2019). Features of YouTube videos include various features like the ability to pause, rewind, and replay, live streaming, real-time interaction features, the ability to change the speed at which videos play, and other related intended functions. With the use of a technology called video on demand, users may access previously recorded video material at any time and pause, slowdown, fast-forward, or replay it as needed (Kumar et al., 2024). Whereas, digital literacy on YouTube videos ensures confidence in digital literacy skills to effectively search and find relevant YouTube videos for teaching and research purposes. When utilizing YouTube as a teaching tool, Guillén-Gámez et al. (2024) highlighted the significance of behavioral intention, which has an effect on teaching staff's digital literacy.

Currently, YouTube videos inspired by the classroom are becoming increasingly popular Thompson (2010). Li Kou and Bonk (2023) aimed to explore the implementations and perspectives of YouTube content creators, who now constitute an increasingly important segment of the ecosystem of language teaching and learning using qualitative and quantitative techniques. Muslem et al. (2022) investigated the effectiveness of using teaching materials via YouTube video with peer support for students to master learning the topic, difficulties, motivations, and also the benefits that are gained in teaching through YouTube. MacIsaac et al. (2022) aimed to describe methodological innovations in teacher preparation, so they use YouTube videos in both undergraduate and graduate courses for prospective university teachers. Da Silva et al. (2023) examined the quality of information about molar incisor hypo mineralization (HIM) on YouTube videos.

Li Kou and Bonk (2023) explored the applications and perspectives of YouTube content creators who now make up an increasingly important segment of the language teaching and learning ecosystem bu using a mixed infographic approach was used, combining qualitative and quantitative techniques. Angu (2019) analyzed the contradictions in the ideas of first-year students about the use of YouTube videos and tried to examine how conflicting views on the mixed approach to teaching the components of professional courses and its effect on the levels of student engagement and motivation during lectures as well as their overall academic performance. Five videos on electrical engineering topics

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were shot, uploaded, and then publicly shared on YouTube, where Baron (2022) investigated which videos might be useful for teaching practical engineering content in a university context. Technology is a major influence on education. Many programs have been used to teach students, and YouTube is one of these programs (Semich & Copper, 2018). It is considered to have a significant impact on teaching and learning and is used by teachers on a wide scale in classrooms (Semich & Copper, 2018).

Secilla-Garrido and Hernando (2022) investigated the effects that occur through the quality of education, the expressive and artistic aspects, and how they can be accessed easily and quickly and found that Instagram and YouTube are the most popular means of communication among all. Many accounts and educational channels were analyzed on both Instagram and YouTube, and thus their educational quality was determined and all the characteristics of the accounts and channels were determined by the teachers (Secilla-Garrido & Hernando, 2022). Instagram and YouTube have a wide variety of educational accounts of quality in all aspects, in addition to a series of characteristics common to social media (Rosario et al., 2022). Majid et al. (2012) offer some suggestions for using YouTube to effectively transfer information knowledge skills and found that the use of Web 2.0 tools, YouTube, is fast becoming a new way to teach information literacy skills more interestingly and engagingly. The widespread use of video lecture recording in universities around the world presents an opportunity to analyze video viewing patterns in an attempt to identify and qualify how users interact and learn using videos (McGowan et al., 2016).

Jia (2019) found that YouTube is becoming an educational tool that improves teaching and they used a literature review of the journal articles and conference proceedings to understand the benefits and limitations of YouTube videos in academia. Users use different methods to learn online, such as YouTube videos, which have been found to have significant impacts and drawbacks on teaching music in both online and offline contexts (Waldron, 2013). using YouTube video teaching materials with peer support led to a significant difference in improving students' mastery of subject content compared to those who did not have peer support (Muslem et al., 2022). Several American courses have been prepared to direct similar work to other students at the University of Cologne by adding YouTube videos for students in physics. So the students made short, similar approximate clops to demonstrate and capture the exact concept at the end of each session (MacIsaac et al., 2022).

Faye (2014) found that students often turn to YouTube clips, and the videos created by the lecturer are favorite clips on the internet. Video-based

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tutorials have been proposed as an initial solution to address the shortage of in-person demonstration sessions (Baron, 2022) and suggested that teachers might consider evaluating their videos using social media analytics, but those analytics should be critically reviewed and should consist of several metrics that are measured provisionally. Ali et al. (2022) found that YouTube could be an educational resource teachers can use to teach young learners and suggested that it could be a source of information that teachers might use to find materials relevant to their classes. Similarly, Busaidi et al. (2024) proposed that social media is one of the ideal tools available to students in Oman for facilitating their educational experience and that higher education institutions (HEIs) may require that students use social media to access free and useful learning resources. While investigating the perceptions of Omani individuals regarding social media in Oman, Shehata et al. (2023) found that participants have high data literacy to use digital platforms, as evidenced by their robust verification competencies.

Roza (2021) found that integrating both the Zoom program, which is considered a model for synchronous learning, and the YouTube program, as a model for asynchronous learning, leads to effectiveness in micro-teaching and through lecturers' answers and students' grades that were published via YouTube video during the Corona epidemic. Whereas Nacak et al. (2020) pointed out that teachers believe that YouTube clips are a means that is considered educational material for explaining lessons. Therefore, they found that YouTube is one of the sites that enhances the continuity of education. Following a thorough review of the literature with pertinent findings, the authors were convinced to develop the following hypotheses.

H_1: Perception of YouTube videos has a positive impact on teaching and research among faculties.

H_{1a}: Perception of YouTube video has a positive impact on YouTube video accessibility.

H_{1b}: Perception of YouTube video has a positive impact on YouTube video content.

H_{1c}: Perception of YouTube video has a positive impact on YouTube video analytics.

H_2: Digital literacy on YouTube videos has a positive impact on teaching and research among faculties.

H_{2a}: Digital literacy on YouTube has a positive impact on YouTube video access.

H_{2b}: Digital literacy on YouTube videos has a positive impact on YouTube video content.

H_{2c}: Digital literacy on YouTube videos has a positive impact on YouTube video analytics.

H_3: YouTube video accessibility has a positive impact on teaching and research among faculties.

H_4: YouTube video content has a positive impact on teaching and research among faculties.

H_5: YouTube video analytics has a positive impact on teaching and research among faculties.

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H_6: Features of YouTube video analytics have a positive impact on teaching and research among faculties.

H_{7a}: YouTube video accessibility has a mediating effect between the perception of YouTube videos and teaching and research.

H_{7b}: YouTube video content has a mediating effect between the perception of YouTube videos and teaching and research.

H_{7c}: YouTube video analytics has a mediating effect between the perception of YouTube videos and teaching and research.

H_{8a}: YouTube video accessibility has a mediating effect between digital literacy on YouTube videos and teaching and research.

H_{8b}: YouTube video content has a mediating effect between digital literacy on YouTube videos and teaching and research.

H_{8c}: YouTube video analytics has a mediating effect between digital literacy on YouTube videos and teaching and research.

H_{9a}: Features of YouTube videos have a moderating effect between YouTube video accessibility and teaching and research.

H_{9b}: Features of YouTube videos have a moderating effect between YouTube video content and teaching and research.

H_{9c}: Features of YouTube videos have a moderating effect between YouTube video analytics and teaching and research.

The current research framework (Figure 1) depicts independent variables such as Perceptions of YouTube Videos (PYV); Digital Literacy on YouTube Videos (DYV); mediating variables such as YouTube Video Content (YVC); YouTube Video Accessibility (YVAcc); and YouTube Video Analytics (YVAna); moderating variable as Features of YouTube Videos (FYV); and dependent variable Teaching and Research (TR). The questionnaire items are presented in Table 1 below:

Figure 1 Research framework

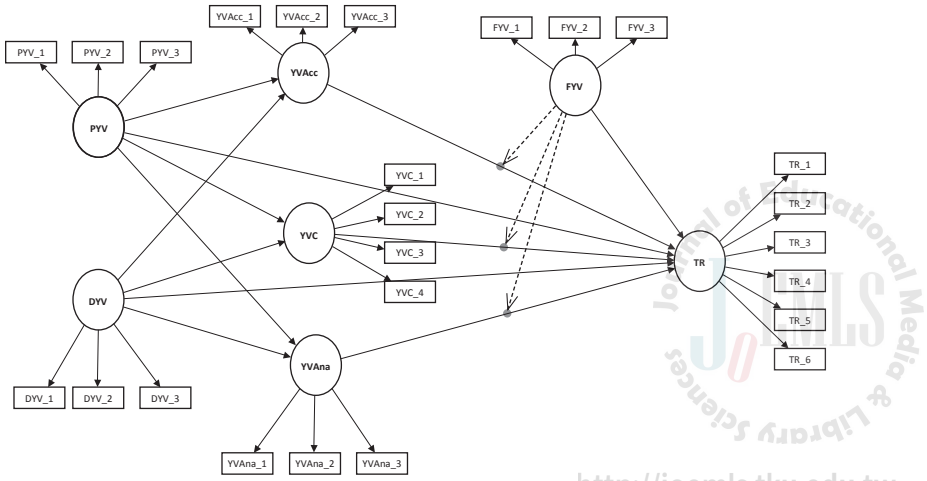

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Table 1 Questionnaire Items

Questionnaire item	Statements
DYV_1	I am confident in my digital literacy skills to effectively search for and find relevant YouTube videos for my teaching purposes.
DYV_2	My digital literacy empowers me to tailor YouTube content to meet specific learning objectives and student needs.
DYV_3	I believe that digital literacy is an essential competence for faculty members to enrich research using YouTube videos.
FYV_1	The capability to pause, rewind, and replay YouTube videos is instrumental in understanding the concept.
FYV_2	YouTube's live streaming and real-time interaction features are helpful for virtual classrooms.
FYV_3	The option to adjust video playback speed on YouTube is a valuable feature to understand intended concepts.
PYV_1	YouTube videos are a valuable resource for enhancing my teaching and research.
PYV_2	YouTube videos serve as a valuable supplement to traditional teaching approaches.
PYV_3	YouTube videos are beneficial for me in comprehending analytical software used for research.
TR_1	YouTube videos are helpful for teaching.
TR_2	YouTube videos are helpful for research.
TR_3	YouTube videos help to enhance teaching methods.
TR_4	YouTube videos contribute to the improvement of research output.
TR_5	YouTube aids me in comprehending certain concepts within the subjects covered in my teaching course.
TR_6	YouTube assists me in understanding specific concepts related to research.
YVAcc_1	The accessibility of YouTube videos for teaching and research is widely available.
YVAcc_2	Subtitles in YouTube videos will improve accessibility for a broader spectrum of learners and researchers.
YVAcc_3	Access to YouTube videos is permitted within my organization.
YVAna_1	I select YouTube videos to watch based on their View Count statistics.
YVAna_2	I choose YouTube videos to watch based on their duration or length.
YVAna_3	I choose YouTube videos to watch based on the number of Likes and Dislikes they have received.
YVC_1	Vlogs on YouTube are effective as teaching resources.
YVC_2	YouTube vlogs to be effective for research purposes.
YVC_3	Live videos on YouTube facilitate real-time discussions, enhancing the understanding of topics within my teaching course.
YVC_4	Live videos on YouTube facilitate real-time discussions, thereby enhancing my research.

Research Methods

A quantitative research design based on a survey method was used. The sample was targeted at faculty members engaged in teaching and research at several colleges and universities in the Ad Dakhlia region, Oman. Using a convenient sampling metho we finally received 100 valid responses for data analysis. Partial least squares structural equation modeling (PLS-SEM) has been used to measure the data and investigate the relationship between variables. In PLS, a sample size of 100 might be adequate to offer satisfactory power for moderate effect sizes (i.e., path coefficient of 0.3; Willaby et al., 2015). Similarly, to ensure the statistical significance of the research findings, Bryman (2016) points out that a survey's sample size must be at least 100 numbers.

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Convenient sampling is a non-probabilistic sampling method in which participants are chosen according to their availability and convenience to the researcher (Andrade, 2021; Suen et al., 2014). This study has used convenient sampling to choose faculties who are involved in research and teaching at various universities in the Ad Dakhlia region, enabling participation from a range of fields. Convenient sampling is appropriate for employing as long as the sample size of the target population has minimal impact on the validity of the results (Andrade, 2021; Suen et al., 2014). In addition to that, convenient sampling is appropriate for employing as long as the sample size of the target population has minimal impact on the validity of the results (Yee & San, 2011). During the data collection phase, researchers took extra precautions to guarantee that the questionnaires were distributed equally among the faculties. Reminder emails have been sent to all teaching and research faculty members. The authors made an effort to get the list of faculties from various university administrations. The questionnaire was intended to meet the research objectives, which were limited to teaching and research professionals. The factors influencing the use of YouTube for teaching and research are determined by looking at the highest levels of expertise who are engaged in teaching and research in the Aldhakhlia region of Oman. A questionnaire was issued to collect primary data and examine the views of experts.

According to Peduzzi et al. (1996), to keep the validity of the model, at least 10 events for each variable under analysis were preferred. With only seven variables, 100 responses, and an unknown population, the current study satisfies the sample size recommendation made by Peduzzi et al. (1996).

Partial least squares structural equation modeling (SEM-PLS) software has been used to analyze the collected data. Providing specific justifications for the application of PLS-SEM (such as non-normal data, small sample sizes, theory building, formative measurements, etc.) is the primary motivation for choosing this statistical technique (Chin & Newsted, 1999; Hui and Wold, 1982; Usakli & Kucukergin, 2018).

Reliability and Validity

According to Sekaran and Bougie (2016), the reliability of a test is important for ensuring consistent measurement across multiple instruments and validating the degree of error-freeness. In this study, the reliability of the questionnaire was tested on seven factors, DYV; FYV; PYV; TR; YVAcc; YVAna; and YVC. In a reflective model, composite reliability is considered a better test for convergent validity compared to Cronbach's alpha. This is because Cronbach's alpha can either overestimate or underestimate scale dependability, making it less favorable as a reliability metric. Composite reliability ranges from 0 to 1, with 1 representing

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ideal predicted dependability. In exploratory work, composite reliabilities should be at least 0.6 (Rouf & Akhtaruddin, 2018). Table 2 below presents the results of the reliability tests. Validity is achieved by the consistency of measurements with ideas about the concept to be measured (Mohd et al., 2021). Convergent and discriminant validity were linked to the concept to be measured for the scale used in this research. The instrument's reliability determines the scale's reliability, and both reliability requirements should be more than 0.70, which has met the current study. The reliability and validity of the current study are shown in Table 2. Further analysis was done because the value is > 0.7, which is acceptable according to George and Mallery (2003).

Table 2 Reliability and Validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
DYV	0.611	0.679	0.792	0.565
FYV	0.686	0.703	0.826	0.614
PYV	0.743	0.754	0.854	0.662
TR	0.888	0.893	0.914	0.641
YVAcc	0.701	0.707	0.834	0.626
YVAna	0.711	0.711	0.838	0.633
YVC	0.815	0.816	0.878	0.644

Collinearity Statistics (VIF)

According to Kwakye et al. (2018), Variance influencing factor (VIF) values typically do not raise concerns regarding collinearity issues because VIF values, which range from 1.283 to 2.775, are far below the maximum threshold of 10. According to Kwakkye et al. (2018), the structural prototype analysis results are not adversely affected by collinearity issues, as seen by the low VIF values, Table 3. Following the establishment of the constructs' reliability and validity, the suggested hypotheses were examined using the SmartPLS software with bootstrapping operation.

Results and Discussion

The demographic characteristics of the respondents are given in Table 4 below. The question that was asked was, "How frequently do you use YouTube for teaching and research purposes?" Respondents said frequently use YouTube for educational purposes. The majority of respondents (31%) said they use YouTube every week, while 20% said they use it daily, another 20% said they use it monthly, and 26% said they use it rarely. Yet another notable finding is that 3% of respondents said they never use YouTube and prefer other platforms. Based on the demographic data, 59% of respondents are men and the majority of them (59%) are older than 40. Of the responders, 51% have a Ph.D., 32%

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Table 3 Variance Influencing Factor (VIF)

Variables	VIF	Variables	VIF
DYV_1	1.395	YVAcc_1	1.443
DYV_2	1.414	YVAcc_2	1.329
DYV_3	1.094	YVAcc_3	1.355
FYV_1	1.283	YVAna_1	1.327
FYV_2	1.483	YVAna_2	1.398
FYV_3	1.328	YVAna_3	1.484
PYV_1	1.784	YVC_1	1.539
PYV_2	1.570	YVC_2	1.901
PYV_3	1.349	YVC_3	1.713
TR_1	1.814	YVC_4	2.302
TR_2	2.330	FYV x YVAcc	1.000
TR_3	2.775	FYV x YVAna	1.000
TR_4	2.507	FYV x YVC	1.000
TR_5	2.018		
TR_6	2.350		

Table 4 Demographic Characteristics

Details	No.	%
Gender		
Male	59	59
Female	41	41
Total	100	100
Age		
Below 20	7	7
21-40	39	39
Above 40	54	54
Total	100	100
Highest qualification		
Master's degree	21	21
Ph.D.	51	51
Others	28	28
Total	100	100
Academic Rank/Position		
Professor	9	9
Associate Professor	12	12
Assistant Professor	20	20
Lecturer	32	32
Researcher	3	3
Others	24	24
Total	100	100

Details	No.	%
Field of study		
Accounting	17	17
Management	14	14
Economics and Finance	6	6
Information Systems	11	11
Others	52	52
Total	100	100
Teaching Experience		
Below 10	47	47
(10) - (20)	28	28
Above 20	25	25
Total	100	100
How frequently do you use YouTube for teaching and research purposes?		
Daily	20	20
Weekly	31	31
Monthly	20	20
Rarely	26	26
Never	3	3
Total	100	100
Nationality		
Omani	59	59
Non Omani	41	41
Total	100	100

work as lecturers, and 20% are assistant professors. Faculty members make up 17% of the accounting, 14% of the management stream, and the remaining 52% come from a variety of other academic disciplines. Among the responders,

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almost 53% have worked as educators for more than ten years. According to the demographic data, the respondents are a well-educated, experienced group representing a variety of academic fields and professional fields.

Table 5 below shows summary responses from the participants under each variable.

Table 5 Participants' Responses

Variables	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Perceptions on YouTube Videos	38.9	40.6	10.0	7.2	3.3
YouTube Video Content	37.1	41.2	14.1	7.7	1.0
Digital Literacy on YouTube Videos	38.9	39.4	10.0	7.2	3.3
YouTube Video Accessibility	41.1	41.1	10.0	7.2	1.7
YouTube Video Analytics	35.6	39.4	12.2	8.9	3.9
Features of YouTube Videos	40.0	39.4	10.6	6.7	3.3

Descriptive Statistics

As can be seen from Table 6, the mean and standard deviation, most respondents chose the scales marked 2 and above, with the mean value for each item being greater than 2. YouTube variables are effective and consistent in faculty research and teaching, as indicated by the average mean value and average level of standard deviation among respondents.

Discriminant Validity Construct

The Heterotrait-Montrait (HTMT) test, which is more rigorous than the Fornell and Larcker (1981) test, is employed in this study (Henseler et al., 2015). Table 7 shows, discriminant validity, that the HTMT values lie between 0.05 to 0.89 (much below 1.00), which is clear evidence for discriminant validity.

Root-squared averages (AVE) of all the variables must have a strong correlation with each other. To ensure the validity of the discriminant, Fornell and Larcker (1981) pointed out that the square root of each variable in its AVE had to serve as a comparison link between variables for each other variable. The discriminant validity of YouTube variables concerning research and teaching is shown in Table 8 below.

In this study, the *R*-squared (R^2) value for Teaching and Research is 0.620 (R^2 adjusted 0.580); for YouTube Video Accessibility, it is 0.384 (R^2 adjusted 0.371); for YouTube Video content R^2 0.543 (R^2 adjusted 0.533); and for YouTube Video Analytics shows R^2 is 0.320 (R^2 adjusted 0.305). These values show that the model is categorized well since this value is greater than 0.30. Finding the impact of exogenous variables on endogenous variables is the goal of the significance test in the SEM-PLS model. Table 9 shows R^2 and adjusted R^2.

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Table 6 Descriptive Statistics

Variables	Mean	Mini	Max	Standard deviation
DYV_1	3.980	2.000	5.000	0.735
DYV_2	3.790	2.000	5.000	0.840
DYV_3	4.080	1.000	5.000	0.796
FYV_1	4.050	1.000	5.000	0.876
FYV_2	3.910	2.000	5.000	0.814
FYV_3	3.810	1.000	5.000	0.857
PYV_1	3.850	1.000	5.000	0.853
PYV_2	3.910	1.000	5.000	0.736
PYV_3	3.780	1.000	5.000	0.855
TR_1	4.150	1.000	5.000	0.753
TR_2	3.780	1.000	5.000	0.986
TR_3	4.100	1.000	5.000	0.742
TR_4	3.680	1.000	5.000	0.989
TR_5	3.880	1.000	5.000	0.909
TR_6	4.010	1.000	5.000	0.794
YVAcc_1	4.100	2.000	5.000	0.574
YVAcc_2	3.990	2.000	5.000	0.714
YVAcc_3	4.180	1.000	5.000	0.698
YVAna_1	3.060	1.000	5.000	1.112
YVAna_2	3.340	1.000	5.000	1.097
YVAna_3	2.830	1.000	5.000	1.184
YVC_1	3.770	1.000	5.000	0.823
YVC_2	3.550	1.000	5.000	0.899
YVC_3	3.840	1.000	5.000	0.809
YVC_4	3.690	1.000	5.000	0.902

Table 7 Discriminant Validity (Heterotrait-Monotrait Ratio [HTMT])

Variables	DYV	FYV	PYV	TR	YVAcc	YVAna	YVC	FYV x YVAcc	FYV x YVC	FYV x YVAna
DYV										
FYV	0.847									
PYV	0.619	0.858								
TR	0.578	0.707	0.861							
YVAcc	0.857	0.740	0.659	0.593						
YVAna	0.731	0.707	0.620	0.584	0.587					
YVC	0.677	0.756	0.902	0.852	0.774	0.633				
FYV x YVAcc	0.523	0.462	0.625	0.462	0.617	0.624	0.464			
FYV x YVC	0.422	0.474	0.640	0.487	0.468	0.451	0.568	0.686		
FYV x YVAna	0.599	0.382	0.497	0.398	0.584	0.608	0.416	0.758	0.609	

Table 8 Discriminant Validity (Fornell-Larcker Criterion)

Variables	DYV	FYV	PYV	TR	YVAcc	YVAna	YVC
DYV	0.753						
FYV	0.553	0.784					
PYV	0.427	0.609	0.813				
TR	0.437	0.559	0.704	0.801			
YVAcc	0.562	0.510	0.484	0.469	0.791		
YVAna	0.509	0.500	0.443	0.467	0.418	0.796	
YVC	0.479	0.567	0.710	0.732	0.584	0.480	0.803

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Table 9 Explanation of the Variance

	R-square	*R*-square adjusted
Exogenous Variables -> Endogenous (Teaching and Research)	0.620	0.580
Exogenous Variables -> Endogenous (YouTube Video Accessibility)	0.384	0.371
Exogenous Variables -> Endogenous (YouTube Video Content)	0.543	0.533
Exogenous Variables -> Endogenous (YouTube Video Analytics)	0.320	0.305

Hypothesis Testing

The results of the analysis show (see Table 10, direct effect) that Perceptions of YouTube Videos (PYV) show a positive impact on TR ($p < .001$, $t = 5.265$), YouTube Video Accessibility (YVAcc) ($p < .01$, $t = 2.747$), YouTube Video Content (YVC) ($p < .001$, $t = 6.217$), and YouTube Video Analytics (YVAna) ($p < .05$, $t = 2.313$). Digital Literacy on YouTube Videos (DYV) shows there is no impact on teaching and research ($p < .05$, $t = 1.527$) but has significant positive influences by YouTube Video Accessibility ($p < .001$, $t = 4.010$), YouTube Video Content ($p < .01$, $t = 2.716$), and YouTube Video Analyticsa ($p < .001$, $t = 3.762$). YouTube Video Accessibility shows a negative effect on teaching and research ($p > .05$, $t = 0.281$), YouTube Video Content shows a significant positive effect on teaching and research ($p < .01$, $t = 2.827$), and YouTube Video Analytics shows no effect on teaching and research ($p < .05$, $t = 0.594$). Similarly, Features of YouTube Videos (FYV) also show no impact on teaching and research ($p < .05$, $t = 0.711$).

Table 10 Hypothesis Testing (Direct Effect)

Hypothesis	*β*	Sample mean (*M*)	Standard deviation (STDEV)	*t* statistics (|O/STDEV|)	*p* values	Supported/ Not Supported
(H_1) PYV -> TR	0.645	0.637	0.122	5.265	.000	***Supported
(H_{1a}) PYV -> YVAcc	0.321	0.322	0.117	2.747	.006	**Supported
(H_{1b}) PYV -> YVC	0.587	0.584	0.094	6.217	.000	***Supported
(H_{1c}) PYV -> YVAna	0.227	0.224	0.098	2.313	.021	*Supported
(H_2) DYV -> TR	0.137	0.135	0.090	1.527	.127	Not supported
(H_{2a}) DYV -> YVAcc	0.461	0.460	0.115	4.010	.000	***Supported
(H_{2b}) DYV -> YVC	0.195	0.195	0.072	2.716	.007	**Supported
(H_{2c}) DYV -> YVAna	0.303	0.309	0.081	3.762	.000	***Supported
(H_3) YVAcc -> TR	-0.028	-0.031	0.101	0.281	.779	Not supported
(H_4) YVC -> TR	0.485	0.493	0.171	2.827	.005	**Supported
(H_5) YVAna -> TR	0.082	0.060	0.137	0.594	.552	Not supported
(H_6) FYV -> TR	0.083	0.095	0.116	0.711	.477	Not supported

Significance levels: ***$p < .001$ ($t > 3.33$), **$p < .01$ ($t > 2.33$), *$p < .05$ ($t > 1.605$).

The mediating effect (see Table 11) of YouTube Video Content shows a mediating effect on the relationship between Perceptions of YouTube Videos and teaching and research ($p < .01$, $t = 2.492$). The mediating effect of YouTube Video Content shows a mediating effect on the relationship between Digital Literacy on YouTube Videos and teaching and research ($p < .01$, $t = 2.397$). However, there is

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no mediating effect of YouTube Video Accessibility on the relationship between other variables in teaching and research. Similarly, there are no mediating effects of YouTube Video Analytics on the relationship between other variables in teaching and research.

Table 11 Hypothesis Testing (Mdiating Effect)

Hypothesis	*β*	Sample mean (*M*)	Standard deviation (STDEV)	*t* statistics (|O/STDEV|)	*p* values	Supported/ Not Supported
(H_{7a}) PYV -> YVAcc -> TR	-0.009	-0.011	0.035	0.260	.795	Not Supported
(H_{7b}) PYV -> YVC -> TR	0.284	0.289	0.114	2.492	.013	**Supported
(H_{7c}) PYV -> YVAna -> TR	0.019	0.013	0.034	0.538	.590	Not Supported
(H_{8a}) DYV -> YVAcc -> TR	-0.013	-0.013	0.048	0.271	.786	Not Supported
(H_{8b}) DYV -> YVC -> TR	0.123	0.123	0.051	2.397	.017	**Supported
(H_{8c}) DYV -> YVAna -> TR	0.025	0.017	0.044	0.559	.576	Not Supported

Significance levels: $^{**}p < .01$ ($t > 2.33$).

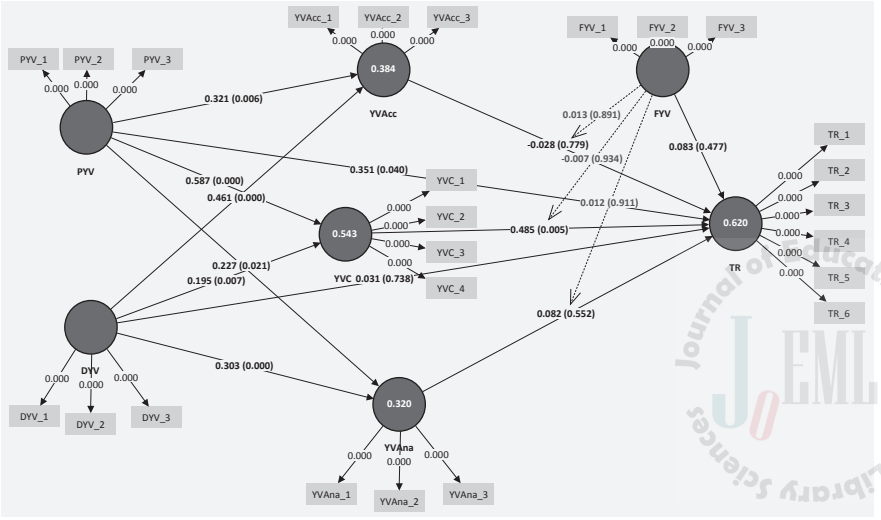
The moderating effect (see Table 12) of Features of YouTube revealed that there are no moderating relationships between YouTube Video Acceand teaching and research, YVC and teaching and research, and YouTube Video Analytics and teaching and research where *p*-value, $p > 0.05$.

Table 12 Hypothesis Testing (Moderating Effect)

Hypothesis	*β*	Sample mean (*M*)	Standard deviation (STDEV)	*t* statistics (|O/STDEV|)	*p* values	Supported/ Not Supported
(H_{9a}) FYV x YVAcc -> TR	0.013	0.020	0.094	0.137	.891	Not Supported
(H_{9b}) FYV x YVC -> TR	-0.007	-0.016	0.079	0.082	.934	Not Supported
(H_{9c}) FYV x YVAna -> TR	0.012	0.023	0.109	0.112	.911	Not Supported

SEM-PLS results are shown in Figure 2, the results of testing hypotheses.

Figure 2 The Results of Testing Hypotheses



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Discussion

YouTube Videos on Teaching and Research Among Faculties

The results of the study showed that YouTube videos (accessibility, analytics, perceptions of YouTube videos, features of YouTube videos, and digital literacy) significantly affect teaching and research. This significant impact on YouTube research and teaching could be due to the availability of YouTube videos for research and teaching is widespread, and the inclusion of subtitles in videos would enhance accessibility for a wider range of researchers and learners. To increase faculty competence in video production, editing, and content creation, Vishwakarma et al. (2023) pointed out that timely facilities and workshops are required.

It is also certainly possible that the researchers and teachers choose which YouTube videos to watch based on their View Count statistics and how long they take to watch each video. Based on the number of Likes and Dislikes a YouTube video obtained, users often select which videos to view. Dienlin and Johannes (2020) emphasized that a YouTube video's functionality for learning depends critically on its relevance and quality.

The significant relationship found in the respondents' perceptions of YouTube videos could potentially be attributed to their belief that these platforms are a valuable means for augmenting their teaching and research, that they are a valuable addition to conventional teaching methods, and that they aid in their understanding of the statistical software used in their research. Tamim (2013) noted that teachers' exposure to YouTube videos had a good influence on their teaching. Similarly, student engagement and learning results can be improved by using YouTube videos.

YouTube's live streaming and real-time interaction features are useful for virtual classrooms; the ability to adjust video playback speed on YouTube is a valuable feature to understand intended concepts; and the ability to pause, rewind, and replay YouTube videos are potentially the reasons for supporting YouTube videos' features. Following the pandemic (Covid-19), watching videos on YouTube has become crucial (Gil-Cordero et al., 2023) for learning. Similarly, Tahmina (2023) mentioned that research and learning activities are significantly successful when YouTube videos are visualized.

One important component that can improve research and education is the digital literacy of YouTube users. This is due to the respondents' confidence in their ability to use digital literacy to find and search for relevant YouTube videos for educational purposes; their ability to customize YouTube content to meet specific learning objectives and student needs; and a belief that using YouTube videos to enhance research requires digital literacy on the part of faculty

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members. According to Guillén et al. (2024), YouTube is an effective tool for educational and research activities that will be helpful if the teachers possess digital skills.

However, YouTube content does not affect teaching and research. This is because Vlogs on YouTube are not effective as teaching resources and the inadequacy of live videos on YouTube hinders real-time discussions. In a study conducted by Almobarak (2024), YouTube videos were examined to assess the quality and accessibility of resources which highlighted that the majority of the videos were in English, which makes a challenge for non-native English speakers. After examining language accessibility, other developing countries especially those with sizable populations of non-English speakers, may find it useful to suggest YouTube videos as additional sources for best practices in both teaching and research.

Conclusions

This study was conducted to identify the role of YouTube videos in enhancing teaching and research, by investigating the perceptions of lecturers in various specializations and evaluating the efficiency of YouTube videos among lecturers in the Sultanate of Oman. There is a lack of research among faculty members; it remains unknown how YouTube videos are used for research and teaching in Oman. This study is the first of its kind to investigate how YouTube videos are used in teaching and research.

The researchers collected data from targeted experts such as university or college professors and researchers in the Sultanate of Oman. A self-developed questionnaire was used to examine the role of YouTube videos in enhancing teaching and research. The questionnaire gives insights into new theoretical contributions where the authors mentioned various factors that affect YouTube videos on teaching and research.

YouTube videos help to assist both lecturers and researchers in various disciplines, as there are videos that intended users benefit from in enriching teaching and research for enhancing quality and betterment of self-profile. As mentioned before, this current study has used a quantitative research method where the collected data has been analyzed using partial least squares, structural equation modeling (PLS-SEM), and MS-Excel programs for analysis.

Digital literacy, perceptions of YouTube videos, and YouTube Video content significantly impact teaching and research. Features of YouTube videos have a moderate effect on Teaching and research. However, other factors show no significant effect on teaching and research. YouTube video content mediates the relationship between Perceptions on YouTube Videos and teaching research; and Digital Literacy on YouTube Videos and teaching research.

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The study's findings will improve the dissemination of YouTube videos as self-directed learners for teaching and research and assist academics, YouTubers, and universities in better tuning for public education.

Implications

Theoretical implications

The current study contributes to the body of literature as part of its theoretical implications. The main research findings shed light on the idea that various YouTube video attributes, including content, accessibility, and analytics, impact the results of teaching and research. This conforms with the Media Richness Theory, according to which Lengel and Daft (1984); Trevino et al. (1987) contend that more complex media like videos improve the efficacy of communication. The value of using YouTube videos for teaching and research has been highlighted in the current study based on the respondents' digital literacy. Thus, the Technology Acceptance Model (TAM) could be the result. Davis (1989) proposed that perceived ease of use had an impact on technology acceptance. The results have confirmed that teachers' use and acceptance of YouTube videos for teaching purposes could be enhanced by their level of digital literacy. The significance of participant perception regarding YouTube video engagement for teaching and research has been underlined by this study. The value addition for the idea of social learning theory (Bandura, 1969). follows from this, implying that participants' behaviors may be influenced by their observational learning. Therefore, a positive impression of YouTube videos and their value for research and education could encourage individuals to use the platform.

Practical implications

Universities and colleges should take the initiative to offer training and workshops in video production, editing, and content development to maximize the talents of their faculty members by making use of YouTube and other related platforms. For the purpose of teaching and research, this study suggests that academic staff members use digital media to exchange knowledge and skills, especially in the field of statistical analysis. HEIs can use the highly competent faculty and researcher's YouTube videos to learn innovative ways to use those features to create dynamic and interactive learning experiences. HEIs exploring by integrating YouTube and other digital media into the syllabus might lead to an enhanced learning experience. By offering top-notch videos, additional features, and multilingual options for intended users, YouTube channel providers may engage with educational institutions. By adhering to ethical standards, they can foster confidence in the ability to lead within the educational setting.

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Limitations and Future Research Directions

The subjects of the study are faculty members engaged in teaching and research at several colleges and universities in the Ad Dakhlia region of Oman. However, this study used convenient sampling method with a relatively small sample size of 100 respondents, which may limit the generalizability of the findings. However, this study has been focused only on experts in this research relevant field. This study explores mediation, and moderation, using quantitative approaches to deepen understanding of YouTube video's impact on teaching and research. Future research studies can be focused on using qualitative and interview methods to understand better. One further issue with this study is that it is limited to Oman. Future studies, however, could focus on different locations from a global perspective. Future studies might concentrate solely on researchers as a cohort to examine their intentions to learn the strategies and expertise of research delivered via YouTube videos. This study only looked at YouTube as a source for videos. Nonetheless, additional platforms like LinkedIn, Facebook, Twitter, Instagram, TikTok, and many more can be used to test the features for teaching and research. Furthermore, although some of the self-developed variables with existing literature were employed in this study, future researchers could incorporate more variables with numerous types of mediation and moderation statistical tests to further advance the field.

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Research Article

Errata Publishing in Library and Information Science Journals From 2001 to 2020 and Citation Patterns of Published Errata: Analysis and Insights[ψ]

Yu-Wei Chang[a*] Mei-Chin Meng[b]

Abstract

The present study examined the publication of errata notices in library and information science (LIS) journals, including the reasons for their publication and citation and whether they were cited accurately. The findings were compared with those of Yang et al. (2023) to assess the influence of journal selection on results. According to an analysis of 325 errata notices published in 80 LIS journals indexed in Scopus and Ulrichweb, errata notices were published as corrections regarding 1. author information, 2. data embedded in tables and figures, and 3. references, in alignment with Yang et al.'s findings. However, the proportion of notices addressing these errors was higher in the present study than in that of Yang et al. (65.2% vs. 44.7%). Among the limited number of errata notices cited by other authors, most were referenced to provide background information or contextualize related studies. Most of these authors cited the original article rather than corrections announced in the errata notice. The proportion of inaccurate citations to errata notices identified in Yang et al.'s study (90.3%) was considerably higher than that found in this study (58.8%). These findings highlight differences in results based on the selection of LIS journals from different databases, underscoring the necessity of careful journal selection. Furthermore, the study findings emphasize the need for authors and journal editors to thoroughly review manuscripts for minor errors before publication to enhance overall publication quality.

Keywords: *Errata, Published reasons, Cited reasons, Library and information science*

ψ This article presents a new study based on the conference paper by Mei-Chin Meng and Yu-Wei Chang, which was presented at the 3rd Conference of LIS and Practices (COLISP 2023).

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SUMMARY

Introduction

Studies on errata notices published outside of natural science fields are rare. We identified only two such studies, both focusing on errata notices in library and information science (LIS) journals (Ajiferuke & Adekannbi, 2020; Yang et al., 2023). Ajiferuke and Adekannbi (2020) noted that over 70% of errata notices in their sample addressed errors in author information, figures and tables, and references. However, their study results did not clarify the reasons errata notices were issued. By contrast, Yang et al.'s (2023) more in-depth investigation encompassed authors' reasons for publishing errata notices and how these notices were cited. The study was based on LIS journals indexed in Web of Science (WoS) between 2001 and 2020, which raises concerns regarding the inclusion of non-LIS journals in the dataset. This limitation may affect the reliability of these authors' findings in addressing research questions specific to LIS journals.

To address these concerns, the present study employed a robust journal selection process to examine the characteristics of LIS errata notices and expanded the dataset by including LIS journals indexed in Scopus. To assess the effect of journal selection on research findings, our results were compared with those of Yang et al. (2023), for the same research questions and study period.

The following questions were investigated:

1. How many errata notices were published annually in LIS journals indexed in Scopus and Ulrichsweb between 2001 and 2020, and what is the proportion of errata notices relative to the total number of documents published?
2. What is the distribution of the types of documents corrected by errata notices?
3. Why are errata notices published, how are these notices cited, and are they cited correctly?
4. What are the differences in research findings between this study, which is based on LIS errata notices from Scopus, and that of Yang et al. (2023), which is based on LIS errata notices from WoS? Both studies were compared to examine the characteristics and implications of errata notice publication in LIS journals.

Method

Data Collection

The present study defined LIS errata notices as those published in LIS journals. Bibliographic records of 768 LIS errata notices were collected from the Scopus database. The following search parameters were used: "Erratum" for

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document type, "Journal" for source type, "English" for language, and "2001-2020" for publication years. Errata notices from some non-LIS journals were identified during examination of bibliographic records; thus, we refined our definition of LIS journals by limiting the sample to those indexed in both Scopus and Ulrichsweb. After 443 errata notices from 35 non-LIS journals were excluded, a total of 325 errata notices from 80 LIS journals were analyzed. Among these 80 journals, 29 were also included in the study by Yang et al. (2023).

Notably, Scopus and WoS may not index all errata notices published by a given LIS journal. Consequently, discrepancies in the number of errata notices from the same LIS journals in a given year were observed. To assess how errata notices were cited, we collected records of paperscited LIS errata noticesbefore.

Data Processing

One author of the present study identified the reason each errata notice was published by reviewing its content. The unit of analysis was a single correction reported in an errata notice. If a notice addressed multiple corrections, the reason for each was analyzed separately. Additionally, whether the prevalence of errata notices varied based on the document type assigned by Scopus was also examined. However, Scopus's "Review" classification includes review articles, book reviews, and other document types, which differs from the "Review Article" classification in WoS. To facilitate comparison between our results and those of Yang et al. (2023), each paper with an associated errata notice categorized as "Review" in Scopus was examined further and reclassified into the category "review articles" or "book reviews."

Results

The main findings of the comparison between our results and those of Yang et al. (2023) are as follows:

1. Proportion of errata notices: During the study period (2001-2020), errata notices accounted for only 0.13% to 0.69% of all documents published annually, which is consistent with prior findings outside the field of LIS that errata notices constitute a very small proportion of publications.
2. Types of documents corrected with errata notices: Documents of all types that are published in academic journals may require correction through errata notices. Most errata notices were found to correct errors in documents classified as articles (66.5% in our study vs. 61.3% in that of Yang et al.), consistent with the findings of other studies and overall predominance of this document type in academic journals. Our analysis also highlights differences in document type between Scopus and WoS.
3. Reasons for errata notice publication: Twelve reasons for errata notice

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publication were identified, the three most common of which were consistent with those found by Yang et al. (2023). The most common reason was correction of author information (including name, institutional affiliation, and contact details), followed by corrections to figures and tables or references.

4. Citation of errata notices: Only 6.4% (21) of the errata notices in our sample were cited by other studies, each receiving between one and eight citations. A likely reason for the low citation rate is that errata notices typically address minor errors not referenced in subsequent research, such as incorrect author names or references. Nevertheless, the existence of citations to errata notices in several studies suggests their value in providing accurate information for reference.
5. Incorrect citation of errata notices: Both our study and that of Yang et al. identified a high proportion of errata notices cited incorrectly. In total, 58.3% of citations for errata notices in the former and 90.3% in the latter referred to content from the original article rather than the notice. These findings indicate a need to reduce the incorrect citation of errata notices.
6. Reasons for errata notice citation: Twelve reasons for errata notice citation were identified, excluding several notices with no determinable reason. Errata notices were primarily cited to provide background information (52.9%) or to support the literature review (25.5%), research method (13.7%), or results/conclusions (3.9%). In Yang et al.'s study, providing background information was also the main reason identified (52.9%), but the next most common reasons were supporting research methods (13.3%), discussion (12.5%), and literature review (11.7%). These differences may stem from differences in the structure of the documents analyzed between both studies.

Conclusion

The present study examined errata notices published in LIS journals over a 20-year period (2001-2020), confirming some findings of the study by Yang et al. (2023) and extending the research scope to provide more detailed results. A comparison of our findings with those of Yang et al. underscored the necessity of selecting appropriate journals for representativeness in analyses of errata notice characteristics within a given field. Additionally, we clarified differences in the scope of journals and documents between Scopus and WoS and examined the influence of database and journal selection on research outcomes. These insights can guide future studies that use data from Scopus and WoS. Furthermore, we recommend that authors carefully review their manuscripts to eliminate errors and dedicate sufficient time to the approval process before publication. Journal editors should also allow adequate time for this process, which is essential for improving overall publication quality.

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研究論文

2001-2020年圖書資訊學期刊勘誤文章之出版及被引用原因之分析與見解ψ

張郁蔚[a*]　蒙美金[b]

摘要

本研究著眼於圖書資訊學期刊選刊問題對研究結果之影響，審慎定義圖書資訊學期刊後，探討圖書資訊學期刊勘誤文章的出版情況、出版原因、被引用原因及引用之正確性情形。本研究與Yang等（2023）研究結果比較，經分析Scopus資料庫中80種圖書資訊學期刊於2001年至2020年間的325篇勘誤文章，顯示勘誤文章之主要出版原因同Yang等人研究結果，包括：更正作者資訊、圖表數據及參考文獻，但相關占比更高（65.2% vs. 44.7%）。少數被引用的勘誤文章主要用於解釋研究背景與文獻回顧，以及大多數引用勘誤文章的文獻實際引用的是原出版文章，未正確引用勘誤文章的比例為58.8%，低於Yang等人研究之90.3%。本研究佐證及建議注意學科期刊選擇及資料庫特性差異，並提醒作者及期刊出版社在文章正式出版前應注意之各種輕微錯誤，以提高出版品質。

關鍵詞：勘誤文章，出版原因，被引用原因，圖書資訊學

前　言

期刊文章從投稿到正式出版前，會歷經同儕審查、期刊編輯人員檢視與作者校對等流程，以確保研究與出版品質，然即使稿件經過不同階段之多人審視，有些正式出版的文章仍被發現不同程度之錯誤（Castillo et al., 2012;

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此篇文章之同儕評閱意見報告（Open Point）及導讀簡報（InSight Point）請至本刊網站查閱
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Erfanmanesh & Da Silva, 2019），故為了避免文章錯誤內容所導致的負面影響（Akhaddar, 2021），期刊多採用發表勘誤文章及撤稿聲明兩種機制來維護學術品質（Akhaddar, 2021; Da Silva & Bornemann-Cimenti, 2017）。不同於撤稿聲明在周知內容有嚴重問題之研究著作，如數據造假或抄襲等違反學術道德的行為（Bar-Ilan & Halevi, 2018; Lievore et al., 2021; Shamsi et al., 2022），勘誤文章則用於告知已正式發表文章之較輕微錯誤，如圖表數據誤植、參考文獻格式有誤，或文章頁碼缺漏等（Da Silva & Dobráánszki, 2017; Hubbard, 2010; Loepprich, 1973; Strothmann, 2018），並提供讀者獲取更正後的內容，其中電子期刊文章如要發布勘誤文章，會提供勘誤文章之連結，將讀者從原已出版文章引導至勘誤文章的頁面；若是紙本期刊文章，期刊則在後續出版卷期中附上勘誤通知。

基於勘誤文章的意涵，以讀者立場而言，並不樂見已出版的期刊文章發表勘誤文章，但事實上，勘誤文章一直持續出版。Fanelli（2013）曾依據Web of Science（簡稱WoS）資料庫，查詢1980年至2012年間的出版的勘誤文章數量，發現每年出版的勘誤文章占整體期刊文章的0.2%，即使勘誤文章的每年出版比例很低，但未曾消失。另勘誤文章的存在不表示各期刊每年都會出版勘誤文章，Ajiferuke與Adekannbi（2020）發現1996年至2016年間，WoS資料庫收錄的88種圖書資訊學期刊中有20種期刊未出版任何勘誤文章，但這可能是受到不同學科期刊對於錯誤內容的關注程度和錯誤敏感度差異之影響，或是期刊缺乏足夠品質控制機制之結果。

至於勘誤文章的出版原因相當多，反映出已出版文章會出現多種錯誤，例如作者姓名拼寫錯誤、參考文獻遺漏、圖表數據誤植、文章篇名有誤或文章頁碼缺漏等不同學科共同常見原因（Ajiferuke & Adekannbi, 2020; Erfanmanesh & Morovati, 2019; Farrah & Rabb, 2019; Loepprich, 1973; Yang et al., 2023），亦有屬於特定學科的勘誤文章出版原因，如化學期刊文章修正化學結構式、化學物質名稱的錯誤（Hubbard, 2010）。基於勘誤文章係更正已出版文章的錯誤，研究人員在引用文章時，需注意是否有並存的勘誤文章；如有勘誤文章，則要根據引用內容決定是否引用勘誤文章。

勘誤文章作為獨立文獻，在引文索引資料庫中有本身被引用次數資料，且研究指出，勘誤文章的被引用次數可能高於原出版文章（Strothmann, 2018）。關於勘誤文章被引用的原因，目前僅有一篇研究透過引用情境分析法（citation context analysis）探討圖書資訊學期刊勘誤文章被引用之原因，Yang等（2023）分析引用85篇圖書資訊學期刊勘誤文章的124篇文章內容，指出勘誤文章最常被引用在文章之研究目的和研究問題的背景說明，但發現高達九成文獻所引用之內容不是來自勘誤文章，而是原出版文章，顯示有相當高比例之引用錯誤情形。

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目前勘誤文章的研究集中在自然科學之生物醫學領域（Akhaddar, 2021; Hauptman et al., 2014; Kotzin & Schuyler, 1989; Loepprich,1973; Royle & Waugh, 2004; Sabine, 1985; Vural et al., 2022），關注勘誤文章之出版原因（Akhaddar, 2021; Castillo et al., 2012; Hauptman et al., 2014; Kotzin & Schuyler, 1989; Loepprich,1973; Vural et al., 2022），或是勘誤文章數量的出版趨勢（Fanelli, 2013; Royle & Waugh, 2004）。社會科學之勘誤文章研究，僅有兩篇同為探討圖書資訊學期刊勘誤文章的研究（Ajiferuke & Adekannbi, 2020; Yang et al., 2023），但其中Ajiferuke與Adekannbi之研究僅提及超過七成之勘誤文章出版原因屬於作者資訊、圖表以及參考文獻方面的錯誤，未提供整體勘誤文章出版原因的詳細數據；而Yang等（2023）對圖書資訊學期刊勘誤文章進行了較全面的探討，依據WoS資料庫收錄之2001年至2020年出版的圖書資訊學期刊勘誤文章，分析其出版情形、出版原因、被引用原因，以及勘誤文章被引用之正確性。惟此兩篇圖書資訊學期刊勘誤文章之研究都有圖書資訊學期刊選擇問題，包含部分不具圖書資訊學屬性的期刊，導致研究結果涵蓋不具圖書資訊學特性期刊的勘誤文章特性，影響到研究結果的精確性。

基於期刊選擇對研究結果的影響，本研究以關注圖書資訊學期刊之代表性為核心，擴大納入分析之圖書資訊學期刊數量，進行圖書資訊學期刊勘誤文章出版原因及被引用原因之探討，並為了與Yang等（2023）的研究結果比較，併同探討不同圖書資訊學期刊勘誤文章來源之研究結果差異，本研究同Yang等人研究，採用相同研究期間，探討圖書資訊學期刊勘誤文章於2001年至2020年之出版趨勢、出版原因、被引用原因，以及被引用之正確性情形。具體研究問題如下：

1. 基於Scopus與 Ulrichsweb資料庫瞭解圖書資訊學期刊勘誤文章於2001-2020年間之出版情形，包括每年出版數量及每年勘誤文章占該年期刊文獻比例為何？
2. 分析勘誤文章之原出版文獻之各文獻類型分布情形為何？
3. 探討勘誤文章出版與被引用原因，以及各原因之分布情形為何？並探討被引用之勘誤文章被正確引用情形果為何？
4. 研究將比較與Yang等（2023）基於WoS資料庫之研究結果差異為何？並提出綜整見解。

二、文獻探討

㈠勘誤文章每年出版趨勢

Ajiferuke與Adekannbi（2020）雖然對WoS資料庫收錄之1996年至2016年間出版之圖書資訊學期刊勘誤文章為研究對象，但未分析勘誤文章之每年出版

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數量，只有Yang等（2023）曾分析圖書資訊學期刊勘誤文章之出版趨勢，依據WoS資料庫中圖書資訊學期刊於2001年至2020年間出版的720篇勘誤文章，發現在此20年間，圖書資訊學期刊每年勘誤文章之數量僅占全部出版文獻之0.17%至0.69%之間。此相當低比例的每年圖書資訊學期刊勘誤文章出版數據並不讓人意外，因其他學科之研究也指出勘誤文章相當低比例的出版數據，如Royle與Waugh（2004）利用MEDLINE資料庫收錄之四種醫學期刊勘誤文章，發現1995年至2001年出版年間，四種醫學期刊所出版的勘誤文章僅占該等期刊所有文獻的0.6%。Hubbard（2010）從Scopus和WoS兩個資料庫選出10種化學期刊，發現2000年至2005年間，每年化學期刊勘誤文章僅占該年度10種化學期刊文獻之0.8%至2.0%。另Fanelli（2013）的研究提供較全面的視角，以WoS資料庫收錄之1980年至2012年出版的勘誤文章為研究對象，指出每年出版的勘誤文章比例平均為0.2%左右。

㈡勘誤文章出版原因

出版勘誤文章是為了修正已出版文章的錯誤，Ajiferuke與Adekannbi（2020）以WoS資料庫於1996年至2016年間出版的356篇圖書資訊學期刊勘誤文章為研究對象，依據該等文章共485個勘誤處進行勘誤文章出版原因分析，惟研究結果僅指出超過七成的勘誤文章出版原因是修正如作者姓名、順序、研究機構等作者資訊錯誤、參考文獻疏漏，或是圖表數字誤植，並未說明完整的勘誤原因及各勘誤原因的文章數量。

Yang等（2023）也是分析WoS資料庫所收錄之圖書資訊學期刊勘誤文章，但研究期間為2001年至2020年間出版之勘誤文章，最初Yang等人收集到720篇勘誤文章，但有三篇勘誤文章更正原出版文章全文，難以確定具體錯誤處，以及113篇因無法取得勘誤文章全文進行而被排除，故是以604篇勘誤文章作為分析出版原因之對象，但在每年勘誤文章之分析上仍是以720篇勘誤文章為樣本。Yang等人根據「研究文章」的結構，如前言、文獻回顧、研究方法、討論與結論等作為勘誤文章出版原因分類之基礎，因部分勘誤文章所勘誤之原出版文獻為書評等非研究文章，在非研究文章不具備研究文章的相同結構下，無法進行勘誤原因分類，故最後以修正研究文章的557個勘誤處進行分析勘誤文章出版原因分析，在辨識出之12種原因中，有三大勘誤文章出版原因，分別是修正「作者資訊」（17.5%）、「圖表」（15.6%）及「參考文獻」（11.6%）錯誤，其餘9種原因依比例由高至低，依序為修正「致謝」（6.3%）、「研究方法」（5.8%）、「研究背景與文獻回顧」（3.4%）、「DOI、頁碼、註解」（3.3%）、「研究結果」（3.2%）、「文章篇名」（3.2%）、「摘要」（1.5%）、「討論」（1.5%）與「結論」（0.8%）。

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圖書資訊學期刊勘誤文章之出版原因如與其他學科之研究結果比較，可發現儘管不同研究者在勘誤文章出版原因的分類上存在差異，但大多數出版原因是共同常見的，特別是作者相關資訊的更正、圖表標題或表格數據的更改以及參考文獻的疏漏等。如Loepprich（1973）分析274種生物醫學期刊在1971年6月至12月間出版的894篇勘誤文章，共辨識出五種勘誤文章出版原因，發現以「表格數字誤植」占比最高，達到29.8%，其次是比例很接近的「文字印刷或頁碼編排錯誤」（28.6%），再其次依序是「藥品劑量單位或數學公式誤植」（17.2%）、「文章篇名、作者資訊錯誤」（12.3%）、「研究建議內容文字有誤」（7.1%）與「其他」（5%）。

Castillo等（2012）分析2006年至2011年間五種醫學影像期刊出版的158篇勘誤文章，指出勘誤文章主要出版原因為「印刷或文章格式錯誤」（59.5%）和「圖表數據誤植」（30.4%）。Akhaddar（2021）以1990年至2019年間出版的441篇神經外科期刊勘誤文章進行探討，顯示勘誤文章出版原因依序為「作者資訊修正」（42.3%）、「文章內容修改」（13.6%）、「圖表錯誤」（12.4%）及「表格數據更正」（10.0%），其餘11種出版原因比例均低於4%，包含「摘要文字更改」（3.4%）、「致謝內容更正」（3.0%）與「文章篇名修訂」（2.4%）等。Vural等（2022）以2000年至2020年間急診醫學期刊251篇勘誤文章為研究對象，結果指出，「作者資訊錯誤」的比例最高（40.5%），其他出版原因比例遠低於作者相關資訊的錯誤，如「表格數據誤植」（10.5%）、「研究方法文字疏漏」（9.7%）與「研究結果文字錯誤」（8.1%）。

除前述醫學領域，Hubbard（2010）研究2000年至2005年間化學期刊出版的220篇勘誤文章，發現最常見的3種出版原因為「化學結構式引用錯誤」（19.2%）、「參考文獻疏漏」（14.9%）與「公式單位或符號有誤」（13.9%），其他出版原因比例均低於10%，如「文章內容遺漏」（7.7%）、「圖表數據錯誤」（7.0%）等。

㈢勘誤文章之原出版文獻類型

Yang等（2023）指出所分析之604篇圖書資訊學期刊勘誤文章，其所修正之原出版文獻分屬11種文獻類型，61.8%的勘誤文章原出版文獻為「研究文章」，占比最高，其次依序為「書評（book review）」（20.0%）、「編者言（editorial items[1]）」（10.6%）、「評論文章（review article）」（2.5%）、「會議論文（conference papers）」（1.6%）、「給主編的信（letter[2]）」（1.0%）、「個人生

[1] Editorial items：依據WoS資料庫定義是指由編輯或主編撰寫的文章，通常討論與期刊相關領域的當前議題、趨勢或政策問題，或對特定文章或研究進行評論。

[2] Letter：依據WoS資料庫定義，是指讀者向期刊編輯發送的文章，用於提供反饋、問題或對其他 研究進行評論和補充。

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平資料（biographical-item[3]）」（0.9%）、「書目（bibliography[4]）」（0.6%）、「資料庫評論（database review）」（0.4%）、「軟體評論（software review）」（0.4%）、「congress[5]」（0.2%）。

至於其他學科之研究結果也顯示勘誤文章之原出版文獻類型相當多元，並以「研究文章」占比最高。如Hauptman等（2014）以PubMed與MEDLINE資料庫收錄之醫學期刊勘誤文章為研究對象，經分析20種醫學期刊在2009年7月至2010年12月出版的557勘誤文章，指出勘誤文章之原出版文獻分屬11種文獻類型，除11.1%的勘誤文章原出版文獻無法確定而被歸類為「其他」外，有近一半勘誤文章所勘誤之原出版文獻是「研究文章」，占比47.9%，其次為「評論文章」（16.4%），再其次依序為「臨床試驗（clinical trial[6]）」（6.6%）、「給主編的信」（6.5%）、「編者言」（6.1%）、「個案報告（case report[7]）」（2.3%）、「統合分析（meta-analyses[8]）」（1.8%），以及「書籍章節（book chapter）」（1.3%）。另Akhaddar（2021）研究1990年至2019年間神經外科期刊的441篇勘誤文章，指出該等勘誤文章之原出版文獻來自七種文獻類型，以「研究文章」占比最高（68.3%），其次是「個案報告」（19.7%），其他文獻類型比例則均低於7%，比例由高至低依序是「評論文章」（6.3%）、「給主編的信」（3.0%）、「摘要」（1.3%）、「編者言」（0.9%）及「技術短文（technical note[9]）」（0.5%）。

㈣勘誤文章被引用原因

瞭解勘誤文章被引用原因有助於瞭解勘誤文章存在之必要性，然目前勘誤文章被引用原因的研究僅有一篇，由Yang等（2023）以圖書資訊學期刊604篇勘誤文章中85篇被引用之勘誤文章為研究對象，經以引用情境分析法分析引用該等85篇勘誤文章的124篇文章內容後，指出勘誤文章被引用在文章的「背景資訊」、「研究方法」、「討論」、「文獻回顧」、「研究結果」、「結論」與「其他」

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[3] Biographical-Item：依據WoS資料庫定義是指記述個人生平、成就及影響的文章，涵蓋個人歷程、專業成就及社會影響。

[4] Bibliography：依據WoS資料庫定義是指特定主題的著作列表，通常帶有描述性或批判性註解，幫助讀者瞭解該主題的研究成果。

[5] Congress：目前無法在WoS及其他資料庫查詢到此類型文獻定義。

[6] Clinical Trial：依據 PubMed資料庫定義是指針對新藥物、治療方法或其他醫療措施進行的系統性研究，以評估其效果。

[7] Case Report：依據PubMed資料庫定義是指記錄和描述個別罕見或特殊病例的醫學文獻，包括病史、治療及結果，分享臨床經驗和見解。

[8] Meta-analyses：依據PubMed資料庫定義是指結合多個研究結果的統計方法，提高結論精確度， 解答個別研究未解決的問題。

[9] Technical note：依據PubMed資料庫定義是指簡要描述新技術、方法或設備的應用，著重於技術的實用價值及其在醫學、工程等特定領域的實際應用。

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七個部分，其中最常出現在引文的「背景資訊」位置（46.8%），作為說明自身研究背景及研究目的；其次是「研究方法」（13.3%），再其次是「討論」（12.5%），用以評論勘誤文章之內容或與自身研究結果進行比較，第四為「文獻回顧」（11.7%），其他依序為「其他」（7.8%）、「研究結果」（5.5%）及「結論」（2.4%）。

㈤引用正確性

目前針對文獻正確引用勘誤文章的研究相當有限，Yang等（2023）的圖書資訊學期刊勘誤文章研究，發現勘誤文章內容未被正確引用，指出在124篇引用圖書資訊學期刊勘誤文章的文獻中，高達90.3%（112篇）所引用之內容其實是來自原出版文章，並非勘誤文章內容，顯示勘誤文章之被引用次數被高估。Thomsen與Resnik（1995）分析*Physical Review Letters*及*Physical Review B*兩種期刊於1989年至1991年間出版的17篇勘誤文章，發現該等勘誤文章之原出版文章，在出版勘誤文章後仍被引用197次，其中有70次（約37%）引用應該要引用勘誤文章，但是卻沒有引用，產生引用不正確的問題，指出引文作者應該在引用文章時要確認是否存在勘誤文章，以避免引用錯誤的情形。Molckovsky等（2011）分析10種腫瘤學期刊於2004年至2007年出版的190篇勘誤文章，並特別關注其中更正嚴重錯誤的26篇勘誤文章，發現此26篇勘誤文章之原出版文章在出版勘誤文章後，總計被引用了549次，其中有10次的引用因引文作者未注意到有勘誤文章的存在，而引用了原出版文章之錯誤數據。

三、研究方法

本研究共採用三種研究方法探討圖書資訊學期刊勘誤文章出版原因及被引用原因，分別以書目計量法分析勘誤文章的書目資料，瞭解勘誤文章之每年出版數量及期刊來源；以內容分析法從勘誤文章及其已出版文獻的全文確認出版原因；並以引用情境分析法從勘誤文章、引用勘誤文章之文獻內容，探究勘誤文章之被引用原因，以及加入檢視勘誤文章之原出版文獻內容，探討勘誤文章是否被正確引用。以下依序說明資料蒐集、資料處理及分析方式。

㈠資料蒐集

考量Scopus資料庫比同屬引文索引資料庫之WoS收錄更多圖書資訊學期刊，可以擴大對圖書資訊學期刊勘誤文章出版原因及被引用原因之瞭解，故本研究先以Scopus資料庫蒐集圖書資訊學期刊勘誤文章書目資料後，其次，從中辨識出已被引用之勘誤文章，再據以蒐集引用勘誤文章之文獻全文資料，提供勘誤文章被引用原因及是否被正確引用之分析。

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1. 檢索圖書資訊學期刊勘誤文章及其書目資料

本研究以圖書資訊學期刊之勘誤文章為研究對象，於Scopus資料庫中利用進階檢索查詢方式指定期刊主題為圖書資訊學代碼，文獻類型為Erratum（勘誤文章），以及資料來源類型為Journal。另為了與Yang等（2023）之研究結果比較，也將勘誤文章出版年設定為同Yang等人研究所限定之2001年至2020年。由於Yang等人蒐集的勘誤文章語言為英語，因此本研究亦限定勘誤文章之出版語言檢索條件為英語。

依據2022年8月22日之初步檢索結果，共檢索到768篇勘誤文章，並轉出完整書目資料，包括作者、篇名、期刊來源、出版時間、被引用次數與參考文獻等，惟在瀏覽勘誤文章的期刊來源，發現有包含非圖書資訊學屬性的期刊，如*Journal of Chemical Information and Modeling*。而導致此種情形的產生，主要是Scopus資料庫對於收錄之期刊賦予一個或一個以上主題類別，當有兩個或兩個以上主題類別之期刊有包含圖書資訊學，即是廣義的圖書資訊學期刊。但期刊主題類別之判斷帶有主觀性與限制，不代表有圖書資訊學主題之期刊一定是有圖書資訊學導向，因此，有些學者早已主張學科期刊選擇之重要性（Chang, 2019; Liu & Yang, 2019），指出WoS及Scopus兩個資料庫之期刊分類問題（Chang, 2019; Huang et al., 2019; Levitt et al., 2011），包含圖書資訊學期刊中有與圖書資訊學關係薄弱之資訊管理期刊（Abrizah et al., 2013, 2015; Ni et al., 2013），甚至排除科學計量導向期刊（Liu & Yang, 2019）。故為降低納入非圖書資訊學期刊勘誤文章對研究結果的影響，以及基於各學者對於核心圖書資訊學期刊範圍之意見差異，本研究決定另外參考Ulrichsweb資料庫對收錄期刊之「主題」分類，以Scopus與Ulrichsweb兩個資料庫共同收錄之圖書資訊學期刊為本研究圖書資訊學目標期刊。後續也輔以檢視Ulrichsweb資料庫之期刊介紹資訊，確認所有目標期刊之收錄主題描述與圖書資訊學相關。

根據以上步驟，經排除35種圖書資訊學期刊共443篇勘誤文章後，剩餘80種期刊共325篇勘誤文章為本研究的圖書資訊學期刊勘誤文章樣本（表1之序號1至80），至於Yang等（2023）是以WoS資料庫中的自然科學引文索引資料庫（SCIE）、社會科學引文索引資料庫（SSCI）以及人文藝術引文索引資料庫（A&HCI）蒐集圖書資訊學期刊勘誤文章，未包含新興資源引文索引資料庫（ESCI）收錄之期刊。本研究的80種圖書資訊學期刊中，其中29種期刊與Yang等人研究的目標期刊相同（序號1至29），代表該等期刊是Scopus、Ulrichweb、WoS中SSCI共同收錄之圖書資訊學期刊；序號30至80之51種期刊，是Scopus與Ulrichweb是共同收錄之圖書資訊學期刊，但未被WoS中SSCI收錄，不是Yang等人研究的目標期刊。至於序號81至123共43種期刊是Yang等人研究的部分目標期刊，不是本研究之目標期刊，代表是WoS中SSCI收錄之圖書資訊學期刊，但不是Scopus及Ulrichweb收錄之圖書資訊學期刊。

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表1 本研究與Yang等（2023）研究之圖書資訊學期刊及勘誤文章數量

序號	期刊名稱	本研究	Yang等（2023）
1	*African Journal of Library Archives and Information Science*	1	1
2	*Australian Academic and Research Libraries*	1	3
3	*Australian Library Journal*	1	2
4	*Canadian Journal of Information and Library Science*	1	1
5	*College and Research Libraries*	7	8
6	*Health Information and Libraries Journal*	5	9
7	*Information and Culture*	3	3
8	*Information Development*	4	3
9	*Information Processing and Management*	9	8
10	*Information Systems Research*	3	4
11	*International Journal of Information Management*	4	4
12	*Journal of Academic Librarianship*	20	13
13	*Journal of Information Science*	12	10
14	*Journal of Information Technology*	5	4
15	*Journal of the Association for Information Science and Technology*	6	6
16	*Journal of the Medical Library Association*	42	34
17	*Knowledge Organization*	10	11
18	*Law Library Journal*	5	5
19	*Library and Information Science Research*	4	5
20	*Library Collections, Acquisition and Technical Services*	2	2
21	*Library Journal*	37	183
22	*Library Quarterly*	3	3
23	*Library Resources and Technical Services*	2	6
24	*Library Trends*	1	1
25	*Libri: International Journal of Libraries and Information Studies*	2	3
26	*Online Information Review*	1	2
27	*Reference and User Services Quarterly*	3	8
28	*Serials Review*	12	6
29	*Transinformacao*	2	2
30	*Archival Science*	5	E
31	*Archivaria*	1	x
32	*Archives and Manuscripts*	3	E
33	*Art Documentation*	1	-
34	*Behavioral and Social Sciences Librarian*	1	-
35	*Biblios*	3	E
36	*Bulletin of the John Rylands University Library of Manchester*	1	-
37	*Cataloging and Classification Quarterly*	2	-
38	*Collection Management*	1	-
39	*College and Research Libraries News*	5	-
40	*College and Undergraduate Libraries*	2	-
41	*IFLA Journal*	3	-
42	*Information Retrieval*	1	-
43	*Information Systems Management*	2	-
44	*Insights: the UKSG Journal*	9	E
45	*International Information and Library Review*	4	-
46	*International Journal of Information, Diversity and Inclusion*	1	x
47	*International Journal of Multimedia Information Retrieval*	1	-
48	*International Journal on Digital Libraries*	1	-

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序號	期刊名稱	本研究	Yang等（2023）
49	*Journal of Access Services*	3	x
50	*Journal of Archival Organization*	2	x
51	*Journal of Business and Finance Librarianship*	2	-
52	*Journal of Classification*	6	-
53	*Journal of Data and Information Science*	2	E
54	*Journal of Educational Media and Library Science*	1	x
55	*Journal of Electronic Resources in Medical Libraries*	3	x
56	*Journal of Hospital Librarianship*	2	x
57	*Journal of Information and Knowledge Management*	2	E
58	*Journal of Library Administration*	4	-
59	*Journal of Library Metadata*	1	x
60	*Journal of Map and Geography Libraries*	1	-
61	*Journal of the Society of Archivists*	1	-
62	*Journal of Web Librarianship*	1	-
63	*Lecture Notes in Control and Information Sciences*	2	-
64	*Libraries and the Cultural Record*	2	x
65	*Medical Reference Services Quarterly*	2	x
66	*Music Reference Services Quarterly*	3	x
67	*New Review of Academic Librarianship*	1	-
68	*OCLC Systems and Services*	2	x
69	*Papers of the Bibliographical Society of America*	1	-
70	*Portal: Libraries and the Academy*	5	x
71	*Preservation, Digital Technology and Culture*	2	x
72	*Public Library Quarterly*	1	-
73	*Public Services Quarterly*	3	x
74	*Reference Librarian*	2	x
75	*Science and Technology Libraries*	2	-
76	*Script and Print*	1	x
77	*Serials Librarian*	3	-
78	*Slavic and East European Information Resources*	2	x
79	*Technical Services Quarterly*	3	-
80	*Transactions of the Cambridge Bibliographical Society*	2	x
81	*Aslib Proceedings*	-	2
82	*Bulletin of the Medical Library Association*	S	1
83	*Econtent*	U	24
84	*Electronic Library*	-	2
85	*European Journal of Information Systems*	U	6
86	*Government Information Quarterly*	U	5
87	*Information and Organization*	S	2
88	*Information Management*	S	8
89	*Information Society*	S	1
90	*Information Systems Journal*	S	2
91	*Information Technology and Libraries*	S	1
92	*Information Technology for Development*	S	4
93	*Information Technology Management*	S	2
94	*Interlending Document Supply*	-	4
95	*International Journal of Computer-Supported Collaborative Learning*	S	2
96	*International Journal of Geographical Information Science*	U	17

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序號	期刊名稱	本研究	Yang等（2023）
97	*Journal of Computer Mediated Communication*	U	8
98	*Journal of Documentation*	S	2
99	*Journal of Enterprise Information Management*	S	1
100	*Journal of Global Information Management*	S	1
101	*Journal of Global Information Technology Management*	S	1
102	*Journal of Health Communication*	U	13
103	*Journal of Informetrics*	U	8
104	*Journal of Knowledge Management*	S	2
105	*Journal of Management Information Systems*	S	3
106	*Journal of Strategic Information Systems*	S	2
107	*Journal of the American Medical Informatics Association*	S	57
108	*Journal of the American Society for Information Science and Technology*	S	18
109	*Journal of the Australian Library and Information Association*	-	1
110	*Knowledge Management Research & Practice*	U	3
111	*Learned Publishing*	U	3
112	*MIS Quarterly*	S	5
113	*Online*	-	3
114	*Publishing Research Quarterly*	S	1
115	*Qualitative Health Research*	S	11
116	*Research Evaluation*	U	6
117	*Restaurator: International Journal for the Preservation of Library and Archival Material*	S	7
118	*Scientist*	S	57
119	*Scientometrics*	U	49
120	*Social Science Computer Review*	U	1
121	*Social Science Information*	-	1
122	*Telecommunications Policy*	U	6
123	*Telematics and Informatics*	S	7
	總　計	325	720

註：(1) S表示該期刊為WoS之SSCI圖書資訊學期刊，但在Scopus中不是圖書資訊學期刊；(2) U表示該期刊在WoS之SSCI和Scopus都是圖書資訊學期刊，但在Ulrichsweb中不是圖書資訊學期刊；(3) E表示該期刊是Scopus收錄之圖書資訊學期刊，以及WoS之ESCI圖書資訊學期刊；(4) x表示該期刊是Scopus收錄之圖書資訊學期刊，但未被WoS資收錄；(5) - 表示該期刊同時是SSCI和Scopus之圖書資訊學期刊，但其中一個資料庫中無勘誤文章出版紀錄。

此外，雖然本研究與Yang等（2023）研究有共同之29種圖書資訊學期刊，但從WoS與Scopus兩個資料庫個別查詢所獲得之勘誤文章篇數不盡相同，很明顯可以看到*Library Journal*（序號21）的勘誤文章數量有最大差異，Yang等人研究獲致該期刊183篇勘誤文章，而本研究僅有37篇，經查證確認Scopus資料庫收錄之*Library Journal*文章可追溯至1945年，但自2016年起，就未再收錄該期刊文章，而WoS資料庫中1956年起每年都有收錄*Library Journal*文章迄今。此提醒我們注意Scopus及WoS兩個資料庫並非都有完整收錄研究期間的每年出版文獻，為此，經查證其他28個共同目標期刊，確認兩個資料庫都有完整收錄研究期間的逐年出版文獻的期刊有14種，以及有些共同目標期刊在特定年份收

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錄之勘誤文章篇數不同，如*Journal of the Medical Library Association*雖然在兩個資料庫收錄之年份均涵蓋到2001年至2020年，但在2004年、2017年、2019年與2020年，Scopus資料庫收錄的該期刊勘誤文章數量都比WoS資料庫多出二至三篇，指出兩個資料庫收錄之特定類型文獻數量也有差異。

相對於兩個研究有29種共同之圖書資訊學期刊，彼此之間有更多不同的目標期刊，高達94種（序號30至123），並可歸納出四種差異：(1) 24種期刊（以代碼S標示者）為WoS中SSCI（Social Science Citation Index）收錄之圖書資訊學期刊，但該等期刊於Scopus資料庫被分類為非圖書資訊學期刊，如*Journal of the American Medical Informatics Association*在Scopus資料庫為醫學期刊；(2) 13種期刊（以代碼U標示）同時為WoS中SSCI及Scopus收錄之圖書資訊學期刊，但在Ulrichsweb資料庫不屬於圖書資訊學期刊，如*Information and Organization*在Ulrichsweb資料庫為商業經濟期刊；(3) 20種期刊（以代碼x標示）為Scopus資料庫之圖書資訊學期刊，但未被WoS資料庫收錄，如*Journal of Access Services*；(4) 六種期刊（以代碼E標示）為Scopus與Ulrichsweb資料庫共同收錄之圖書資訊學期刊，但在WoS資料庫中為ESCI的期刊，如*Archival Science*。

綜合上述，顯示不同資料庫對期刊之收錄範圍及各期刊文獻之收錄年份存有差異，而此種差異會直接影響兩個研究之圖書資訊學期刊勘誤文章之組成。

2. 蒐集被勘誤之原已出版文章

本研究之勘誤文章出版原因分類，同Yang等（2023）研究之分類產生方式，是依據勘誤處所出現之特定文章結構位置，例如篇名、摘要、前言、結論等，由於有些勘誤文章僅說明勘誤內容位於原出版文章的某頁或某個句子中，未說明原出版文章之勘誤處所在文章結構位置，在此情形下必須檢視原出版文章，進行文章結構位置的確認，因此，透過Scopus資料庫或期刊網站中獲取勘誤文章原出版文章之全文資料。

3. 蒐集引用勘誤文章之文獻全文

本研究於2022年8月22日蒐集引用勘誤文章的引文資料，不包含2022年8月22日之後新增的引文資料。為確認勘誤文章被引用原因，經從勘誤文章的書目資料辨識出已被引用之21篇勘誤文章後，於Scopus資料庫輸入文獻篇名，取得引用各勘誤文章之文獻全文資料，據以進行後續之引用情境分析。引用情境分析是透過被引用文獻在引文內文註的前後附近文字，提供研究者辨識文獻的被引用原因（Small, 1982）。

㈡資料處理與分析

1. 辨識勘誤文章出版原因

為確認勘誤文章出版原因，本研究以人工方式逐篇閱讀勘誤文章內容，以一個勘誤處為勘誤文章出版原因之分析單位，當一篇勘誤文章提出兩個勘誤

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處，則個別分析，各自產出一個勘誤出版原因。另研究文章與非研究文章之結構不同，導致勘誤文章出版原因不盡相同，然受限無法區分Yang等（2023）研究中哪些勘誤文章之原版文獻是研究文獻，因此本研究之勘誤文章出版原因是分析所有勘誤文章，非僅就研究文章被勘誤之原因進行探討，並採用Yang等（2023）使用之12種勘誤原因（見表2），以利研究結果之比較。

表2 勘誤文章出版原因分類表

序號	出版原因	說 明
1	文章篇名	文章篇名誤植或不精確
2	作者資訊	作者姓名拼寫錯誤或遺漏、任職機構變更、聯繫資訊有誤，或作者順序錯誤
3	研究方法	研究方法的文字陳述不清楚或錯誤
4	研究背景與文獻回顧	研究背景、文獻回顧描述有疏漏或不清楚
5	研究結果	研究結果內容錯誤或文字遺漏
6	致謝	致謝內容遺漏或文字錯誤
7	討論	討論內容有誤
8	參考文獻	參考文獻格式錯誤或資訊疏漏
9	結論	結論說明錯誤或缺漏
10	圖表	圖表標題或順序位置有誤
11	摘要	摘要內容疏漏或描述不清楚
12	DOI ／ URL、頁碼	DOI ／ URL錯誤或失效、頁碼錯誤

2. 確認被勘誤之原出版文獻類型

勘誤文章之原出版文獻可能分屬不同文獻類型（Yang et al., 2023），其可由自Scopus資料庫查詢並轉出之書目資料中獲知。由於本研究是與Yang等人之研究結果進行比較，本研究資料來源之Scopus資料庫與Yang等人研究所使用之資料來源WoS資料庫，在文獻類型的分類並不完全相同，主要的差異是Scopus資料庫之“Review”不僅止於review articles，還包含書評或其他評論性質之文獻，加上從原出版文獻為“Review”的勘誤文章書目資訊，部分有說明是更正書評或特定文獻類型出版之內容錯誤，因此本研究進一步確認原出版文獻屬Review者之確切文獻類型，其步驟為：

(1) 檢視原出版文獻之勘誤文章之書目內容，確認有無提及原出版文獻之文獻類型。如有，檢視原出版文獻全文，確認符合所述之文獻類型；如無，進行下一步驟。

(2) 查詢期刊網站上對原出版文獻之特定文獻類型標記，並檢視原出版文獻全文，確認符合所述之文獻類型。

3. 分析勘誤文章之被引用原因

為了與Yang等（2023）的研究結果進行比較，也採用Yang等人研究根據勘誤文章內容在引文（引用勘誤文章之文獻）中的位置，產出七種被引用原因（表3），而Yang等人在分析勘誤文章被引用原因時，是將文獻回顧與研究背景的位

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置分開探討，不同於表2之勘誤文章出版原因中，將研究背景及文獻回顧列為同一類原因。

表3 勘誤文章被引用原因分類表

序號	被引用原因	說 明
1	文獻回顧	引用勘誤文章說明研究主題的研究成果或觀點
2	研究背景	引用勘誤文章說明背景資訊、研究目的和研究問題
3	研究方法	採用或參考勘誤文章之研究方法
4	研究結果	引用勘誤文章來解釋或支持其研究結果
5	討論	在討論中引用勘誤文章，以解釋某些觀點
6	結論	在結論中引用勘誤文章，以強化研究的結論
7	其他	無法歸入上述原因

4. 確認勘誤文章被引用正確

為了確認引文有無正確引用勘誤文章，本研究經比對引文之引用內容、勘誤文章內容，以及勘誤文章原出版文章內容後，如確認引文引用的內容與勘誤文章內容一致，則確定有正確引用勘誤文章；反之，如果與勘誤文章內容不一致，而是與原已出版文章內容一致，則判定引文作者是引用原已出版文章，未正確引用勘誤文章。

四、研究結果

㈠勘誤文章出版情形

表4顯示在2001年至2020年研究期間，本研究自Scopus資料庫獲取之325篇圖書資訊學期刊勘誤文章，每年出版數量介於1篇至30篇，而Yang等（2023）自WoS資料庫蒐集及分析的720篇圖書資訊學期刊勘誤文章，每年出版數量介於19篇至65篇，因每年期刊出版的文獻數量可能隨資料庫收錄之期刊數量增加而增加，且本研究與Yang等人研究之資料來源不盡相同，故不宜直接比較每年勘誤文章出版數量。經比較每年勘誤文章數量占同年期刊文獻出版數量之比例，顯示本研究之每年圖書資訊學期刊勘誤文章占同年圖書資訊學期刊文獻數之0.13%至0.44%，而Yang等人研究之勘誤文章每年出版比例介於0.17%至0.69%，顯示兩個研究分析所獲致之圖書資訊學期刊勘誤文章出版比例均相當低且接近。雖然大部分的年份，Yang等人之勘誤文章出版比例略高於本研究數據，但因差距甚小，不超過0.38%，確認圖書資訊學期刊之勘誤文章出版比例一直處於偏低情形，兩個研究並無不同之研究發現，並指出期刊文獻之出版仍無法透過現有的作者校對杜絕錯誤之產生。

㈡勘誤文章之原出版文獻類型

表5顯示本研究勘誤文章的原出版文獻涵蓋七種文獻類型，其中數量最多是研究文章（216篇，66.5%），其次依序為書評（44篇，13.5%）、編者言（22

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表4 勘誤文章之每年出版比例比較

出版年	本研究		Yang 等（2023）	
	出版數量	出版比例	出版數量	出版比例
2001	1	0.21	20	0.18
2002	6	0.44	19	0.18
2003	17	0.38	19	0.17
2004	15	0.12	35	0.35
2005	5	0.17	40	0.39
2006	10	0.24	38	0.37
2007	16	0.24	41	0.40
2008	17	0.27	45	0.45
2009	13	0.26	43	0.48
2010	21	0.26	38	0.39
2011	17	0.35	32	0.33
2012	16	0.34	31	0.34
2013	21	0.23	30	0.31
2014	17	0.32	30	0.30
2015	17	0.31	39	0.37
2016	30	0.35	53	0.51
2017	22	0.26	31	0.31
2018	25	0.31	65	0.69
2019	21	0.24	38	0.44
2020	18	0.13	33	0.39
總計	325	0.57	720	0.40

篇，6.8%）、評論文章（21篇，6.5%）與會議論文（16篇，4.9%），其餘兩種文獻類型包括Note與Letter，比例均未超過1.2%。至於Yang等（2023）分析之720篇勘誤文章，其所勘誤之原出版文獻涵蓋12種文獻類型，前五大文獻類型之排序與本研究相同，同樣以研究文章比例最高（441篇，61.3%），其次依序為書評（144篇，20.0%），編者言（75篇，10.4%），評論文章（18篇，2.5%）與會議論文（11篇，1.5%），以及就文獻類型差異比較，Yang等人研究比本研究多出新聞、個人生平資訊、書目、資料庫評論、軟體評論及Congress共六種文獻類型，本研究僅比Yang等人研究多出短文（Note）一種文獻類型，而兩個研究不同之各文獻類型比例均相當低。

為確認兩個研究之勘誤文章在原出版文獻類型分布上是否存在差異，須以卡方分析。因進行卡方檢定分析時，各細格之期望次數（此處是指各原出版文獻類型之篇數）不得太小，通常需有80%以上的細格次數要大於5，否則卡方檢定的結果偏誤會非常明顯，而對於細格次數過少之一種校正方式就是合併細格（邱皓政，2019）。由於表5中小於5的細格數量超過20%，加上本研究無序號8至13之文獻類型，以及Yang等（2023）研究之序號10至13篇數均少於5，因此將序號8至13之「新聞」、「個人生平資訊」、「書目」、「資料庫評論」、「軟體評論」與「Congress」合併為一類後，經卡方分析檢驗發現達顯著差異（χ^2 (7, N = 1,045) = 48.807, p = .000），再進一步透過事後分析，確認本研究與Yang等人研究

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表5 勘誤文章原出版文獻類型分布比較

序號	原出版文獻類型	本研究		Yang等（2023）	
		文獻數量	百分比	文獻數量	百分比
1	研究文章（article）	216	66.5	441	61.3
2	書評（book review）*	44	13.5	144	20.0
3	編者言（editorial items）	22	6.8	75	10.4
4	評論文章（review article）*	21	6.5	18	2.5
5	會議論文（conference paper）	16	4.9	11	1.5
6	短文（note）	4	1.2	0	0.0
7	給主編的信（letter）	2	0.6	7	1.0
8	新聞（news item）	-	-	9	1.3
9	個人生平資訊（biographical-item）	-	-	6	0.8
10	書目（bibliography）	-	-	4	0.6
11	資料庫評論（database review）	-	-	2	0.3
12	軟體評論（software review）	-	-	2	0.3
13	Congress#	-	-	1	0.1
	總　計	325	100.0	720	100.0

*達顯著差異；- 表示無此種文獻類型；#表示Congress此文獻類型目前不存在WoS，也無從查詢到定義。

在「書評」與「評論文章」兩種文獻類型的比例上呈現顯著差異，表示本研究勘誤文章所勘誤的評論文章比例（6.5%）明顯高於Yang等人研究的比例（2.5%），而Yang等人研究之勘誤文章所勘誤的書評比例（20.0%）則明顯高於本研究比例（13.5%）。

㈢勘誤文章之勘誤處數量

如表6所示，本研究325篇勘誤文章共含377處勘誤，一篇勘誤文章包含的勘誤數量介於一至五個，高達88.3%（287篇）的勘誤文章更正一個錯誤，其次有8.0%（26篇）勘誤文章更正兩個錯誤，至於有一篇勘誤文章更正五個錯誤，涵蓋更正作者任職機構、圖表數據、參考文獻、結論及致謝內容。至於Yang等（2023）研究原先蒐集的720篇勘誤文章，在此項分析排除掉無法確認勘誤數量的116篇勘誤文章後，依據剩餘604篇勘誤文章共756處勘誤進行分析。Yang等人的研究結果顯示1篇勘誤文章的勘誤數量介於1至28個，也是以更正一個錯誤之勘誤文章最多（525篇，87.0%），其次是更正兩個錯誤（58篇，9.6%），而修正超過五個錯誤之勘誤文章有五篇，特別是有一篇修正高達28個錯誤。

有關兩個研究有不同勘誤數量之勘誤文章比例分布差異，因表5中有超過20%的勘誤文章細格數量小於5，故將「勘誤處數量為5、6、8、28」合併，進行卡方檢定發現並無顯著差異（$\chi^2(4, N = 929) = 7.622, p = .062$）。

㈣勘誤文章出版原因

本研究325篇勘誤文章所總計之377個勘誤處中，受限有些勘誤文章之原出版文獻並非研究文章，無既定的結構顯示勘誤文章被引用至原出版文獻之特定位置，如1篇勘誤文章指出某篇書評中的內容文字有誤，但由於書評沒有固

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表6 勘誤文章之勘誤處數量分布比較

一篇勘誤文章之勘誤數量	本研究			Yang等（2023）		
	勘誤文章數量（A）	百分比（A）	勘誤數量	勘誤文章數量（B）	百分比（B）	勘誤數量
1	287	88.3	287	525	87.0	525
2	26	8.0	52	58	9.6	116
3	11	3.4	33	7	1.2	21
4	0	0.0	0	7	1.2	28
5	1	0.3	5	2	0.3	10
6	0	0.0	0	2	0.3	12
8	0	0.0	0	2	0.3	16
28	0	0.0	0	1	0.1	28
總 計	325	100.0	377	604	100.0	756

定的結構或段落名稱標示，如「摘要」、「研究背景」和「研究結果」等，故無法確定其在文中的精確位置，這樣的情況導致有27個（7.2%）勘誤處被歸類為「無法辨識」。其餘12種出版原因如表7所示，以作者資訊錯誤占比最高（27.6%），其次是圖表順序或標題錯誤（19.4%），再其次是參考文獻更正（17.8%），至於其他出版原因比例則相對較低，介於1.1%至6.4%之間，包括研究背景與文獻回顧的文字疏漏、摘要內容有誤以及研究方法中文字錯誤。

表7 勘誤文章之出版原因比較

序號	出版原因	本研究		Yang等（2023）	
		數量	百分比	數量	百分比
1	作者資訊*	104	27.6	132	17.5
2	圖表	73	19.4	118	15.6
3	參考文獻*	67	17.8	88	11.6
4	研究背景與文獻回顧*	24	6.4	26	3.4
5	摘要*	18	4.8	11	1.5
6	研究方法	15	4.0	44	5.8
7	研究結果	15	4.0	24	3.2
8	DOI/URL、頁碼	9	2.4	25	3.3
9	文章篇名	8	2.1	24	3.2
10	致謝*	7	1.9	48	6.3
11	討論	6	1.6	11	1.5
12	結論	4	1.1	6	0.8
13	無法判斷	27	7.2	199	26.3
總 計		377	100.0	756	100.0

*達顯著差異。

Yang等（2023）研究所分析之604篇勘誤文章中，有199個勘誤處無法辨識原因（26.3%），比例高於本研究，至於前三大出版原因與本研究結果一致，依比例高低排序，同樣為作者資訊錯誤（17.5%），圖表標題或數據錯誤（15.9%），參考文獻格式錯誤（11.6%）。至於次要的出版原因，Yang等人研究主要是致謝文字錯誤（6.3%）和研究方法文字錯誤（5.8%），與本研究有較大差異，不同於

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本研究次要錯誤主要為研究背景和文獻回顧文字錯誤（6.4%）及摘要內容疏漏（4.8%）。為了確認兩個研究之勘誤文章出版原因分布情形是否存在顯著差異，經卡方分析檢驗與事後分析，顯示在作者資訊、參考文獻、研究背景與文獻回顧、摘要以及致謝的比例上達顯著差異（$\chi^2(12, N = 1{,}133) = 97.913, p = .000$）。

本研究也同Yang等（2023）研究，依據勘誤原因將勘誤文章區分為輕微、次要、嚴重錯誤三種等級。根據表8顯示，在本研究325篇勘誤文章中，輕微錯誤最常見，比例高達85.2%，主要是關於作者資訊修改、研究背景文字疏漏或參考文獻內容更正，與文章的核心內容無關，對研究結論沒有影響；次要錯誤占12.3%，主要是修改圖表數據，導致部分研究結果需要更正，但結論不受影響；嚴重錯誤占2.5%，主要是修改結論的文字內容。至於Yang等人研究依據604篇勘誤文章之分析結果顯示，也是輕微錯誤的修正最常見，比例為67.1%，主要是作者資訊、致謝或參考文獻等文字內容的更改，但輕微錯誤比例大幅低於本研究比例（85.4%）；次要錯誤占比29.3%，涉及圖表、研究方法的文字描述，影響到部分研究結果的解釋，但整體上不改變研究結論；嚴重錯誤占比最低（3.6%），涉及錯誤會影響數據解釋，導致結論需要更改。

表8　勘誤文章之勘誤嚴重程度比較

勘誤嚴重程度	本研究		Yang等（2023）	
	勘誤文章數量	百分比	勘誤文章數量	百分比
輕微*	277	85.2	405	67.1
次要*	40	12.3	177	29.3
嚴重	8	2.5	22	3.6
總 計	325	100.0	604	100.0

*達顯著差異。

兩個研究之勘誤文章勘誤嚴重程度比例，經卡方分析檢驗及事後分析，顯示在輕微與次要程度比例達顯著差異（$\chi^2(2, N = 929) = 36.557, p = .000$）。雖然如此，兩個研究均指出絕大多數的勘誤是可透過出版前仔細校對發現，即使Yang等（2023）研究的目標期刊都是SSCI收錄之更具國際影響力之優質期刊，其屬次要及嚴重錯誤的勘誤文章比例並未低於本研究的目標期刊，顯然期刊也需要投入更多人力檢視待出版文章之錯誤，無法完全依賴作者之校對。

㈤勘誤文章之被引用原因

在本研究分析的325篇勘誤文章中，僅21篇有被引用，每篇被引用次數介於一至八次，總計引用這些勘誤文章的文獻有51篇。被引用次數介於一至三次的勘誤文章多為更正表格數據錯誤或研究方法內容疏漏，而被引用四至八次的勘誤文章主要涉及結果數據的更正，這類更正可能對原出版文章的結論產生影響，因此更容易被其他研究者引用。

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如表9顯示，本研究勘誤文章之被引用原因僅有五種，以被引用在文章之「研究背景」處比例最高，占52.9%；其次為被引用在「文獻回顧」處，占25.5%；第三為「研究方法」，占13.7%，提供引文作者參考勘誤文章內容來設計研究方法，包括研究架構或資料分析等。相較之下，Yang等（2023）的研究有85篇勘誤文章被124篇文獻引用，被引用原因比本研究多出「討論」與「其他」兩種，其中「研究背景」為最常見被引用原因（46.8%），其次是「研究方法」（13.3%），再其次是「討論」（12.5%），其中「研究背景」為最常見被引用原因（46.8%），其次是「研究方法」（13.3%），再其次是「討論」（12.5%），值得注意的是，「文獻回顧」的比例與本研究的比例差距最大。但兩個研究均共同指出被引用之勘誤文章主要被引用在研究背景及文獻回顧處，符合此兩個部分是出現最多內文註引用的特性（張郁蔚、李宜珍，2020）。

表9 勘誤文章被引用原因比較

序號	被引用原因	本研究		Yang等（2023）	
		引用次數	百分比	引用次數	百分比
1	研究背景	25	52.9	60	46.8
2	文獻回顧*	15	25.5	15	11.7
3	研究方法	7	13.7	17	13.3
4	討論*	0	0.0	16	12.5
5	研究結果	2	3.9	7	5.5
6	結論	2	3.9	3	2.4
7	其他	0	0.0	10	7.8
	總　計	51	100.0	128	100.0

*顯著差異。

為瞭解兩個研究之勘誤文章的被引用原因比例是否存在顯著差異，經將序號5至7的「研究結果」、「結論」與「其他」合併為一類後，經卡方分析檢驗及事後分析，顯示在「文獻回顧」與「討論」的比例上達顯著差異（χ^2 (4, N =179) = 14.875, p = .005），表示本研究勘誤文章被引用在「文獻回顧」處的比例（25.5%）明顯高於Yang等（2023）研究的比例（11.7%），而Yang等人研究勘誤文章被引用在「討論」處的比例（12.5%）則明顯高於本研究比例（0.0%）。

㈥勘誤文章被引用正確性

表10顯示本研究引用圖書資訊學期刊勘誤文章的51篇文獻中，有30篇（占58.8%）的引用內容其實是來自原出版文章，並非引用自勘誤文章所更正之內容，故經確認正確引用勘誤文章內容的文章為21篇，占51篇引文之41.2%，此顯示本研究同Yang等（2023）研究均發現勘誤文章有未被正確引用的問題，特別是Yang等人的研究發現錯誤引用比例（90.3%）遠高於本研究（58.8%）。雖然如此，兩個研究都印證研究者主要是引用原出版文章，並非勘誤文章，反映出勘誤文章之被引用次數遠比實際數據低很多。

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表10　勘誤文章被引用正確性比較

被引用之內容來源	本研究		Yang等（2023）	
	引用勘誤文章之文獻篇數	百分比	引用勘誤文章之文獻篇數	百分比
原出版文章	30	58.8	112	90.3
勘誤文章	21	41.2	12	9.7
總　計	51	100.0	124	100.0

五、討論與結論

㈠討論

本研究基於Yang等（2023）研究的圖書資訊學期刊選擇問題，再次針對圖書資訊學期刊勘誤文章進行探討，包含勘誤文章出版情形、勘誤文章出版原因以及勘誤文章被引用原因與勘誤文章引用之正確性，同時比較兩個研究研究結果差異。但為了擴大圖書資訊學期刊範圍，以能納入更多勘誤文章進行分析，呈現更多圖書資訊學期刊勘誤文章特性，本研究並未同Yang等人研究從WoS資料庫之SSCI蒐集圖書資訊學期刊勘誤文章，因此在樣本資料上存有差異。

經比較本研究與Yang等（2023）研究之圖書資訊學目標期刊，發現Yang等（2023）以WoS資料庫之SSCI檢索的2001年至2020年間出版之720篇圖書資訊學期刊勘誤文章，實際是來自73種期刊，並非宣稱的74種期刊，導致一種期刊的差異是在Yang等人研究所列之期刊清單中發現*Libri: International Journal of Libraries and Information Studies*與*Libri*為相同期刊。而本研究是利用期刊收錄數量更多之Scopus資料庫，從中檢索到同期間共115種圖書資訊學期刊之768篇勘誤文章，惟考量到期刊文獻資料庫對期刊主題分類之問題，為降低樣本期刊之學科代表性問題對研究結果之影響，本研究先定義圖書資訊學期刊條件，非完全接受Scopus資料庫之期刊分類結果，經採用Scopus與Ulrichsweb兩個資料庫共同收錄之圖書資訊學期刊為目標期刊，使得原本的115種圖書資訊學期刊縮減為80種，勘誤文章數量也由768篇大幅縮減為325篇。

就兩個研究之圖書資訊學期刊選定標準差異，可以發現共同認定的圖書資訊學期刊只有29種，分別占本研究80種圖書資訊學期刊之36.2%，以及Yang等（2023）研究73種期刊之39.7%，如此之差異是各資料庫對收錄期刊之主題屬性判定方式不一，而此不一致性也凸顯期刊主題判斷具主觀性，而為降低主觀性判斷之差異，本研究才採用不同資料庫共同收錄之圖書資訊學期刊為目標期刊。依據Wang與Waltman（2016）對WoS與Scopus兩個資料庫的各主題期刊與對應主題之相關性，以引用觀點之實證結果指出，兩個資料庫所收錄之圖書資訊學期刊均包含非圖書資訊學期刊。另Chang（2019）分析SSCI收錄之75種圖書資訊學期刊於2015年出版的文章，也瞭解到許多SSCI收錄之圖書資訊學期刊並不是有明顯圖書資訊學色彩的期刊，如*Government Information Quarterly*期刊文

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章主要是被資訊管理、傳播之期刊文獻引用，對圖書資訊學影響相當有限，以及也被本研究排除之*Journal of the American Medical Informatics Association*，有高達57篇勘誤文章，其也是類似情形，該期刊文章主要是對健康科學、醫學資訊學（medical informatics）有引用影響力。

此外，就Scopus與WoS兩個資料庫對相同期刊同一年份出版文獻收錄數量不一問題，排除收錄卷期範圍問題，造成文獻數量差異之主因為收錄文獻類型差異及文獻類型判定不一致。經測試幾種共同被Scopus及WoS兩個資料庫收錄之卷期出版之期刊文獻，發現被WoS資料庫收錄之新聞及個人生平資料兩種類型文獻，並未被Scopus資料庫收錄，另外也發現相同文獻在兩個資料庫之文獻類型不一致問題，此是相關研究已經證實之問題（Donner, 2017; Mokhnacheva, 2023）。綜合上述，顯示本研究與Yang等（2023）研究在資料來源有相當差異，故對於研究結果之數據，主要聚焦在研究結果的意涵，非特定研究數據之數字差異。

㈡ 結論

如排除上述有關兩個研究之資料來源差異，比較兩個研究結果，會發現以下結論：

1.本研究之勘誤文章每年出版比例介於0.13%至0.44%，類似Yang等（2023）研究之0.18%至0.69%，顯示圖書資訊學期刊勘誤文章的出版量在全部各種文獻數量中所占比例很低，此種情形也與其他學科之研究結果類似（Hubbard, 2010; Royle & Waugh, 2004），指出勘誤文章之出版很難消失，即使是國際能見度、影響力較高的SSCI收錄之圖書資訊學期刊，其勘誤文章比例並未低於SSCI以外之圖書資訊學期刊。基於稿件校對需要仔細檢視，以及有些期刊僅給予兩個工作天進行校對，在時間不及處理情形下，作者不可能仔細校對，故建議期刊出版社給予作者更充裕的校對時間。

2.期刊文獻包含多種類型，視期刊而異，而各種文獻類型都可能出現勘誤，即使多數文獻類型之數量有限。但基本上，出版數量相對較多的文獻類型文獻，其勘誤文章數量也較多，進而所占比例也會較高。由於研究文章為學術期刊之最主要出版的文獻類型，因此研究結果在預期範圍內，指出勘誤文章主要是修正研究文章之錯誤，此也與過往研究結果是一致的（Akhaddar, 2021; Hauptman et al., 2014; Vural et al., 2022），至於其他文獻類型之勘誤比例，發現本研究所勘誤之評論文章比例明顯高於Yang等人研究，而Yang等人研究是所勘誤之書評比例明顯高於本研究，此主要是受到期刊樣本影響，因並非每個期刊都會出版評論型之文獻或其他類型文獻。如前述提到Scopus資料的文獻類型Review包含多個相當於WoS的評論性文章、書評、書目，以及其他種類之評論。此外，經測試也發現Scopus資料庫未收錄新聞、個人生平資訊等類型文獻，以及相同文獻在兩個資料庫之文獻類型不一致問題。

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3. 二個研究有相同之三大勘誤文章出版原因，最常見的出版原因皆是更正作者資訊，其次是修正圖表標題、順序或內容數據，第三是修改參考文獻格式，此結果類似Hauptman等（2014）在醫學期刊中發現，勘誤文章主要是修正圖表數據（31.7%）和作者資訊（23.4%），但其他研究的發現則不一致（Castillo et al., 2012; Hubbard, 2010; Loepprich, 1973），無法找出不同學科勘誤文章出版的最主要原因。此發現有助於瞭解圖書資訊學期刊勘誤文章之主要出版原因，提供期刊參考，以能在有限行政人力情形下，加強檢視錯誤率較高的部分，以期提高出版品質和學術出版的可信度。

唯作者資訊的更正又包含不同情形，除作者姓名拼寫錯誤，有關作者任職機構資訊更正部分，如果不是機構名稱拼寫錯誤或不完整問題，而是涉及改以其他機構資訊替代或新增其他機構資訊，可能涉及作者對任職機構資訊的認知差異（Chang, 2023），特別是作者完成研究的所在機構與文章出版時所在機構如有不同，作者可能是僅提供後者機構，以能列為服務於該機構時期之研究產出，又可能是同時列出兩個機構。至於更正合著中作者序位之問題，雖然本研究發現此在作者資訊更正上數最少情形，但基於作者序位所代表的研究貢獻差異及對作者研究發現意涵的影響，此情形可能反映出合作中作者序位的決定並未在研究合作前就有達成共識或決定，成為共同作者之間常見的爭議與糾紛（Savchenko & Rosenfeld, 2024），故有待注意作者序位的更正是否有隨圖書資訊學合著文章比例增加而增加。

4. 有被引用的勘誤文章比例偏低，本研究325篇勘誤文章中，僅有6.4%（21篇）的勘誤文章被引用，但此情形應屬合理情形，因必須注意許多勘誤原因所產生之勘誤文章並不會被他人引用，如僅是修正作者資訊或參考文獻錯誤之勘誤文章。而有被引用之勘誤文章，每篇勘誤文章之被引用次數介於一至八次，其中被引用次數介於一至三次的勘誤文章，其主要是更正表格數據或修正研究方法內容，屬於較不會影響原出版文章之結論；而被引用四至八次的勘誤文章多為涉及結果數據的更正，在會影響原出版文章結論之情形下，彰顯出勘誤文章出版的必要性，以及說明更可能被其他研究者引用，因此被引用次數較高。

雖然只有少數勘誤文章被引用，但表示有研究者意識到勘誤文章之存在與功能，只是本研究與Yang等（2023）研究均發現有相當高比例之勘誤文章引用並不正確，Yang等人研究發現引用勘誤文章之124篇文獻中，高達90.3%的引用內容是來自原出版文章，而非勘誤文章本身，而本研究則是發現有58.8%的錯誤引用，針對二個研究都指出相當高比例的引用不正確問題，指出了實際上僅有更少的勘誤文章會被引用，因此，有被引用的勘誤文章及其被引用次數都需要下修，也就是勘誤文章之影響力被高估，並非原本被引用次數所反映出之影響力。此外，此也引發一個疑問，錯誤引用勘誤文章的作者，是否對原出版文章及其勘誤文章之引用有理解上的錯誤，例如認為有被勘誤的文章在引用

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時，參考文獻應該列出勘誤文章，而非原出版文章，或是其他原因，顯然此必須透過詢問引用者本身才能進一步確認。

5. 勘誤文章之被引用原因，本研究發現五種原因中，以被引用在研究背景說明之比例最高，超過一半（52.9%），其次是被引用在文獻回顧（25.5%），第三是被引用說明研究方法（13.7%），最後則是被引用在研究結果與結論（3.9%）。至於 Yang 等人研究發現有七種被引用原因，比例最高的被引用原因也是引用在研究背景說明（46.8%），但次高是被引用在研究方法（13.3%），第三高是被引用在討論部分（12.5%），文獻回顧比例為 11.7%，排名第四高。對於兩個研究結果的差異，恐是受到各期刊結構差異之影響，雖然研究文章的常見結構為 IMRaD，包含前言（Introduction）、研究方法（Methods）、研究結果（Results）及討論（Discussion），但並非都是由四大部分組成，可能由更多部分組成，或是同一部分中有不同組成分子，如有些文章將文獻回顧併入前言，有些文章的討論可能與研究結果或結論放在同一部分中，因此在文章各部分之範圍差異下，有難以一致性的比較。不過，基於前言部分有相當之背景資訊及相關文獻陳述需求，過往研究指出此部分傾向有最多內文註（張郁蔚、李宜珍，2020；Bertin & Atanassova, 2018），故本研究及 Yang 等人研究的發現也是支持此現象。

㈢ 研究貢獻及未來研究建議

本研究之主要研究貢獻涵蓋四個部份，第一，研究結果除了印證 Yang 等（2023）研究結果的發現，確認圖書資訊學勘誤文章之出版及被引用原因，也強化部分研究問題，提供進一步的發現及說明研究結果的意涵；第二，透過與 Yang 等人研究之比較，證明學科期刊選擇之重要性及注意資料庫特性差異問題，特別是發現 Scopus 及 WoS 兩個資料庫共同收錄之圖書資訊學期刊，並非都有完整收錄研究期間的每年出版文獻，且收錄之特定類型文獻數量也有差異，此可提供未來研究人員研究實務上之參考；第三，進一步確認出原出版文獻屬於 review 者的確切文獻類型，讓研究發現更加詳實；第四，本研究指出的勘誤文章出版原因，可提醒作者及期刊出版社在文章正式出版前應注意之各種輕微錯誤，以能提高出版品質，特別是比例較高的勘誤原因。

至於未來研究建議部分，基於本研究結果，我們提出兩點建議，首先，學科期刊文獻特性可供瞭解學科特性，而學科期刊選擇直接影響研究結果，故研究人員在學科目標期刊之選擇必須謹慎，而非全盤接受資料庫之期刊主題分類結果；其次，基於文獻資料庫的特性差異，包括特定主題之期刊收錄範圍及文獻特性分類不一致問題，未來研究可考慮擴展至其他資料庫收錄之圖書資訊學期刊，以提高研究的全面性，甚至進行不同學科的研究結果比較，特別是勘誤文章研究尚未被探討的學科，以更全面瞭解勘誤文章的功能，並注意各資料庫文獻類型差異。

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Research Article

A Case Study on the Information Ethics Gap among College Students in Taiwan: A Repeated Cross-Sectional Analysis (2008–2021)[ψ]

Tao-Ming Chuang

Abstract

The ethical gap is the personal inconsistency between moral attitudes and behaviors, which moral education is striving to improve. With the popularity of information and communication technology, cybercrime has increased and caused educational institutions to note the necessity for information ethics education. In 2001, the new Curriculum Guidelines of Basic Education in Taiwan added the course outline in information ethics to educate elementary and high school students on the correct use of information. Information ethics education in basic education has been in place for a long time. What was the attitude of college students toward information ethics norms? What was the actual information behavior of college students? Were there any information ethics gaps for college students? The purpose of the study was to analyze the inconsistency between college students' attitudes and behaviors in information ethics, regarding intellectual property rights, privacy protection and information security, computer use, and academic ethics. A repeated cross-sectional survey was conducted in the 2008, 2012, 2016, and 2020 academic years to evaluate the effectiveness of information ethics education in Taiwan. The research results revealed that although there were information ethics gaps between college students' attitudes and behaviors, the gap was gradually shrinking because of the improvement in students' ethical behaviors. The privacy protection and information security ethics gap was reduced most significantly in the four information ethics norms.

Keywords: *Information ethical gap, Intellectual property, Privacy protection, Computer use, Academic ethics*

[ψ] The findings of the first survey conducted in the 97th academic year were presented on November 21, 2008, at the 1st ICPE International Conference (International Conference on Information Capital, Property, and Ethics (ICPE) – 2008).

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SUMMARY

Introduction

Chinese societies traditionally emphasize moral education by integrating it into elementary school curricula to establish students' ability to distinguish right from wrong. However, as students grow up and face various temptations, the ethical gap—the personal inconsistency between moral attitudes and behaviors—becomes a common phenomenon in personal moral life. In Taiwan, the advancement of information education has provided students with widespread internet access, but it has also led to an increase in cybercrimes, internet addiction, and information ethics issues among young people. To address students' ethical gaps, the Ministry of Education has incorporated information literacy and information ethics into the curriculum for many years. In this paper, surveys of college students' ethical gaps, which have been conducted every four years since 2008, analyzed the gap between students' ethical attitudes and actual behaviors in terms of intellectual property rights, privacy and information security, campus computer use, and academic ethics.

Literature Review

In the twenty-first century, many countries have integrated information education into their national curricula to enhance citizens' information competitiveness and establish a foundation for lifelong learning. In Taiwan, the Ministry of Education introduced the "Use of Technology and Information Skills" integrated curriculum to improve students' correct use of information. However, as the internet became widely accessible, there was increasing concern about young people's delinquent internet behaviors, such as online fraud, identity theft, and internet addiction. The Taiwan Police Bulletin Statistics showed that a significant percentage of cybercriminals were students aged 18-23 (Police Department, Ministry of the Interior, 2023). The Ministry of Education of Taiwan was aware of the need to enforce laws to improve students' information ethics.

Research on college students' information ethics revealed a gap between ethical attitudes and behaviors, particularly in intellectual property issues. Studies have shown that students' attitudes toward online piracy were influenced by their level of ethical awareness, especially among those unaware of the implications of software piracy (Chuang et al., 2011; Yin, 2014). Similar cases were found in environmental and educational ethics. Young individuals and novice professionals without experience or training often fail to align their ethical beliefs with their actions (Aschemann-Witzel & Niebuhr, 2014; Branstetter & Handelsman, 2000). This phenomenon also emerged in various professions, such as psychology and journalism, and impacted public trust. These findings highlight the importance

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of strengthening professional ethics education and training to reduce ethical gaps in both academic and professional settings (Li et al., 2012; Mellado et al., 2020).

Method

This study employed a repeated cross-sectional survey method, conducting a questionnaire survey every four years to observe long-term changes in Taiwanese college students' information ethics gap (IEG), defined as the difference between students' ethical attitudes (EA) and ethical behaviors (EB), and to measure IEG using gap analysis. The hypothesis assumed no significant difference between EA and EB and was tested using paired *t*-tests. A significant positive *t*-value indicates that ethical commitment is stronger than practice, while a negative *t*-value suggests that commitment is weaker than action. The study framework and questionnaire based on Mason's (1986) PAPA four dimensions of information ethics (Privacy, Accuracy, Property, and Accessibility) redefined intellectual property rights, privacy and information security, campus computer use, and academic ethics. The questions were informed by regulations produced by Taiwan's Ministry of Education and Shih Hsin University. The questionnaire on each dimension consisted of two parts: ethical attitudes and ethical behaviors. The attitude and behavior sections comprised 15 and 20 questions, respectively. The survey used a Likert five-point scale, ranging from 5 "strongly agree" to 1 "strongly disagree."

The study conducted four surveys in the 2008, 2012, 2016, and 2020 academic years, and the survey subjects were students from the Department of Information and Communication, Shih Hsin University. The four surveys from 2008 to 2020 had response rates of 75.1%, 85.7%, 75.1%, and 82.3%, respectively. A total of 974 students participated, with 774 valid responses (79.5%). Cronbach's α reliability tests showed excellent (0.947) reliability for ethical attitude questions and good (0.812) reliability for ethical behavior questions, maintaining acceptable reliability across all surveys.

Results

This study analyzed information ethics among college students, focusing on intellectual property, privacy and information security, campus computer use, and academic ethics. Regarding intellectual property, students showed support for ethical norms, with average ratings near 4.0. However, behaviors such as avoiding illegal software use and sharing copyrighted content showed lower compliance, with averages below 3.0. Paired *t*-tests revealed significant gaps between students' ethical attitudes and behaviors across four academic years, indicating a noticeable ethical gap in intellectual property, although the gap showed signs of narrowing over time.

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According to students' ethics on privacy and information security based on four attitude and five behavior questions, students valued privacy and security highly, with all attitude scores above 4.0. Behavioral compliance was also relatively strong, with scores above 3.0. Paired *t*-tests from the 2008 to 2020 academic years showed a narrowing ethical gap, with no significant difference by 2020. This reduction was due to improved ethical behavior rather than a decline in ethical attitudes, suggesting that students actively enhanced their privacy and security practices, narrowing the gap between ethical support and compliance.

This study analyzed college students' ethical gaps in campus computer usage, covering five attitude and five behavior questions. Students strongly supported ethical guidelines on maintaining cleanliness, quietness, and proper computer operation, with scores above 4.0. However, behaviors such as not occupying seats, eating, or playing games in computer labs showed lower compliance. The paired *t*-tests from the 2008 to 2020 academic years revealed a significant ethical gap, with support for attitudes generally higher than actual behaviors. This information ethical gap, especially in terms of seat occupation, eating, and gaming, suggests a need for further advocacy and habit formation in students' adherence to these guidelines.

To assess the academic ethics of college students, the study analyzed two ethical guidelines and five behavioral questions. Students strongly supported academic ethics, with high scores for integrity in exams and adherence to academic creation standards. However, behaviors such as proper citation and avoidance of plagiarism showed lower compliance. Paired *t*-tests from the 2008 to 2020 academic years revealed significant gaps between ethical guidelines and actual behaviors although this gap gradually narrowed. The results suggest that while students strongly support academic ethics, improving practical behaviors, such as citation skills and avoidance of plagiarism, were priorities.

This study compared students' attitudes and behaviors in four areas of information ethics: intellectual property, privacy and information security, campus computer usage, and academic ethics. Academic ethics had the highest average score (M = 4.24), followed by privacy and information security (M = 4.15), campus computer usage (M = 4.04), and intellectual property (M = 3.96). While attitudes toward ethical norms remained high, behaviors showed an increasing improvement trend, with privacy and security behaviors showing the fastest rise. Based on four-time surveys, students' compliance with ethical behavior has improved significantly over the years, indicating a growing awareness and practice of information ethics.

The IEG value reflects students' progress or regression in information ethics. A larger IEG value, representing a greater disparity between attitude and

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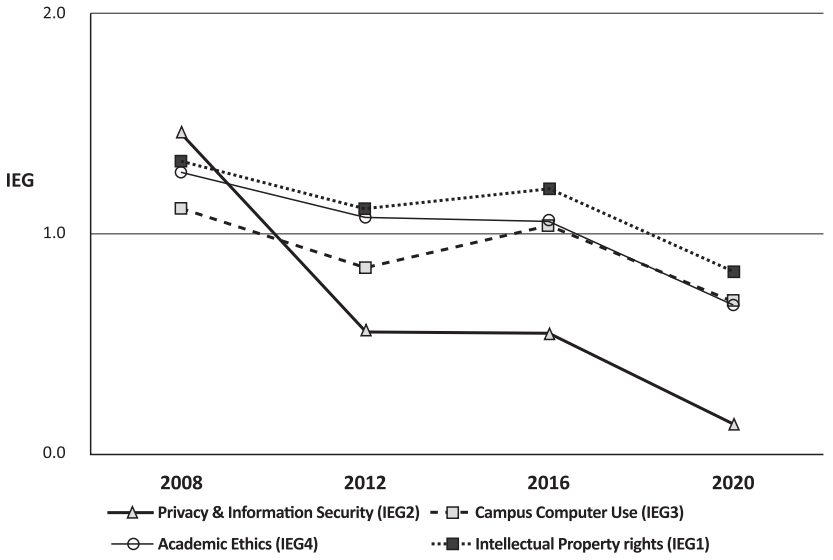
behavior, signifies a regression in ethical development. In the study, the privacy and information security gap (IEG_2) was at its highest in the 2008 academic year (1.46), then decreased rapidly to below 1 by the 2012 academic year. The overall IEG values for the four years showed a gradual reduction, with a significant drop to 0.56 in the 2020 academic year (see Table 1 and Figure 1). This change seems to be linked to the efforts of the Ministry of Education, highlighting its influence on students' ethical attitudes and behaviors.

Table 1 The Information Ethics Gap

Academic Year	2008 (*n* = 184)		2012 (*n* = 203)		2016 (*n* = 187)		2020 (*n* = 200)		Total (*n* = 774)	
Information Ethics Gap	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Privacy and information security (IEG2)	1.46	1.13	0.56	0.70	0.55	0.81	0.13	1.40	0.66	1.15
Campus computer use (IEG3)	1.11	0.59	0.84	0.56	1.03	0.64	0.69	1.23	0.91	0.82
Academic ethics (IEG4)	1.27	0.63	1.07	0.67	1.05	0.70	0.67	1.39	1.01	0.93
Intellectual property rights (IEG1)	1.32	0.73	1.11	0.68	1.20	0.71	0.82	1.35	1.11	0.93
Information Ethics Gap (IEG)	1.27	0.59	0.86	0.44	0.93	0.55	0.56	1.17	0.89	0.79

Figure 1 The Four Issues of the Information Ethics Gap



Conclusion

This study conducted surveys on college students' information ethics in the 2008, 2012, 2016, and 2020 academic years, focusing on four aspects: intellectual property, privacy and information security, campus computer use, and academic ethics. The study systematically analyzed the trend of the gap between students' information ethical attitudes and behaviors. The results indicated that students consistently supported academic ethics and privacy/security regulations but

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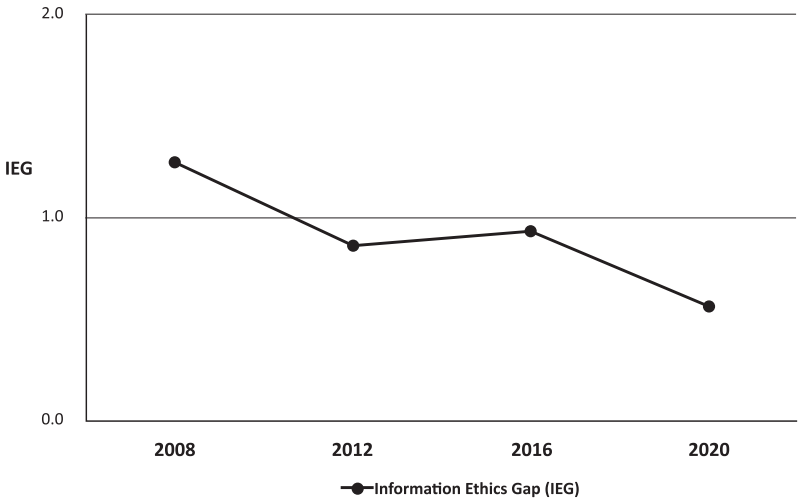
Figure 2 The Trend of the Information Ethics Gap



showed the lowest support for intellectual property regulations. Students' behaviors reflected higher compliance with privacy/security ethics but weaker support behavior in terms of intellectual property. The information ethics gap among students shrank gradually over time, especially in 2020, when there was no gap in privacy and security behaviors. The study suggests a continued focus on improving academic citation skills and reducing plagiarism. Despite the high recognition of campus computer use rules, compliance with restrictive behaviors such as not reserving seats or consuming food remains insufficient. Intellectual property ethics also need further attention. For future studies, the research suggests recruiting a broader sample and updating the questionnaire to reflect the current web usage environment and students' practical behavior.

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研究論文

台灣大學生資訊倫理落差：重複橫斷面之個案研究（2008-2021）ψ

莊道明

摘要

倫理落差（ethical gap）是人類對道德承諾與行為實踐之間的差距，反映個人道德實踐中「知而未行」的程度。此現象也是道德教育致力改善的主題。隨網路科技普及，網路犯罪數量逐漸增加，教育機構開始關注資訊倫理教育重要性。隨台灣施行國民教育新課綱加強資訊倫理教育，從小培育學生資訊正確使用觀念。義務教育推動資訊倫理教育推行之有年，台灣的大學生對資訊倫理規範態度為何？大學生遵守資訊倫理的行為又是如何？兩者之間是否存在資訊倫理落差？研究目的是對大學生的智慧財產權、隱私與資訊安全、校園電腦使用與學術倫理等四項資訊倫理態度與行為差距進行問卷調查。採用重複橫斷面調查法分別在97、101、105與109學年進行重複性問卷調查，以長期觀察資訊倫理教育成效。研究結果顯示大學生雖然普遍存在資訊倫理落差，但隨大學生遵守資訊倫理行為提高，促使資訊倫理落差逐步縮減。在四項資訊倫理態度中，以隱私與資訊安全的倫理落差縮減幅度最明顯。

關鍵詞：資訊倫理落差，智慧財產權，隱私保護，學術倫理，校園電腦使用

前　言

華人社會向來重視倫理道德，在小學教育即將道德教育內涵融入課程中，從小建立社會道德觀與是非判斷力。國人雖從小學就有道德教育，但隨著成長

ψ文中97學年第一次調查成果發表於2008年11月21日第一屆ICPE國際研討會（International Conference on Information Capital, Property, and Ethics (ICPE) – 2008）。

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經歷，在世間各種利誘下，國人不遵循道德規範做出錯誤行為難以避免。學術上將個人宣稱道德理念與實際作為不一致現象，即「說一套做一套」的行為稱之「倫理落差」（ethical gap）。學校教育或宗教信仰為提倡道德與縮減倫理落差，藉由道德倫理教育或鼓勵行為反省來改善。例如論語學而篇記載曾子曰：吾日三省吾身；為人謀而不忠乎？與朋友交而不信乎？傳不習乎？記錄孔子學生曾子藉著每日的道德行為反思以縮減倫理落差。倫理落差不僅發生在民眾日常生活中，記者、行銷人員、諮商師等專門人員也會有「專業倫理」落差行為，使得專業學會為維護社會大眾對專業信任，透過專業倫理教育以提升維繫專業精神（田廣曉等，2020；李佳儒等，2012；Mellado et. al., 2020; Oliva & Kelle, 2018）。

台灣資訊教育發達，在政府資訊教育推動下，很短時間達成人人會上網的目標。但隨之而來是網路犯罪件數逐年增加，學生因上網衍伸援助交際、盜刷父母信用卡購買電玩點數卡與網路成癮等新聞事件快速增加，使教育機構開始關注學生上網的資訊安全與資訊倫理重要性。教育部在2001年九年一貫與2011年十二年國教課綱中，將資訊素養與資訊倫理納入課程單元，培育學生資訊素養能力與建立正確使用網路的資訊倫理教育。例如在十二年國教課綱中，明定「科技資訊與媒體素養」是培育學生「具備善用科技、資訊與各類媒體之能力，培養相關倫理及媒體識讀的素養，俾能分析、思辨、批判人與科技、資訊及媒體之關係」終身學習力。隨著學生進入高等教育後，大學生對於教育單位發布的資訊倫理規範態度為何？大學生實際遵守資訊倫理行為程度為何？大學生使用資訊時，產生知行不一的資訊倫理落差是否嚴重？基於上述問題本研究自2008年起每隔四年進行大學生資訊倫理落差問卷調查。目的在觀察大學生資訊倫理認知與實際遵守行為之間差距變化，間接探究台灣資訊倫理教育落實成效，提供教育單位推動資訊倫理教育參考。

二、文獻探討

㈠青少年資訊倫理教育受關注

21世紀資訊社會趨勢下，許多國家皆將資訊教育列入國家義務教育，以厚植國民的資訊競爭力並奠立全民終身學習基礎。台灣教育部在2001年實施「教育改革行動方案」，將「運用科技與資訊」列入九年一貫課綱以培育學生具備創造思考、問題解決、主動學習、溝通合作與終身學習正確的資訊學習態度，建立善用資訊科技的資訊倫理及智慧財產權正確觀念，從國小教育就能扎根學生的資訊倫理基礎（教育部國民及學前教育署，2024）。2011年政府開始推動十二年國民基本教育（簡稱十二年國教），進一步規劃「自主行動」、「溝通互動」、「社會參與」三大面向與九項核心素養的「十二年國民基本教育課程綱要」。在九

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項素養中的「科技資訊與媒體素養」持續培育學生在資訊時代能善用科技、資訊與媒體能力，具備倫理及媒體識讀素養，發揮分析、思辨、批判人與科技、資訊及媒體關係（教育部，2014）。台灣無論是九年一貫課綱或十二年國教新課綱，皆是彰顯台灣教育機關對資訊教育重視，從義務教育開始培育學生資訊素養。

當政府從強化中小學生上網能力時，青少年因網路使用經驗不足，衍生出網路交友詐騙、援助交際、盜刷家長信用卡購買電玩點數與網路成癮等社會新聞備受教育單位重視。從1999至2004年台灣網路犯罪資料庫統計，台灣網路犯罪前五名分別是網路性交易、網路詐欺、竊盜、網路盜版及網路色情。所有犯罪人當中有23.7%是在學學生，又以18-23歲比例最高（29.1%）。2002年至2004年網路犯罪嫌疑犯中，國高中生人數比例超過半數以上，引起台灣教育單位重視（Jen et al., 2006）。台灣地區近五年（2018-2022年）網路犯罪以「詐欺」居首達39.65%，其次為「妨害名譽（信用）」，再次之是「妨害電腦使用」。其中智慧財產權侵害數量呈現逐年遞減趨勢。從嫌疑犯年齡統計仍以18-29歲居多（內政部警政署，2023）。為減少青年網路犯罪，加強學生資訊倫理與網路法治教育仍受教育單位的重視。

隨著網路使用人數增加與網路犯罪逐漸年輕化，國高中生資訊使用行為備受關注。鄧佳茜等（2008）採用Mason資訊倫理架構的隱私權、正確性、財產權、資訊存取權的PAPA模式，對國中生資訊倫理認知與行為使用進行問卷調查，問卷分成倫理認知與倫理行為兩組部分。依據調查結果國中生資訊倫理認知中，對資訊正確性重視度最高，其次是隱私權認知及資訊存取權、以智慧財產權重視程度最低。雖然中學生資訊倫理行為大致符合行為要求，但在個人隱私權的保護行為表現最積極，其次是財產權與存取權，最差則是資訊正確性行為，顯示出中學生的認知與行為是有差異。此外，國中生大都由同儕或網路習得錯誤資訊，使得中學生隨著年級增加，資訊倫理認同程度反而下降。因而研究結論建議學校應強化學校資訊倫理教育，以建立中學生資訊倫理正確觀念。美國麥克阿瑟基金會（MacArthur Foundation）關注青少年日常使用社交軟體、部落格、視訊部落格、線上遊戲、即時通訊等新媒體的資訊倫理問題，針對「網路身分認同」（identity）、「個人隱私」（privacy）、「資訊所有權」（ownership）、「資訊可信度」（credibility）與「社群參與」（participation）等資訊倫理議題進行研究。研究認為要培育學生具備網路倫理，需懂得隱私安全重要性學習管理個人身分資料。同時重視資訊所有權，維護網路信譽、公平對待網友，與重視網路的公民道德倫理。學校資訊環境應提供新媒體軟硬體安全設施並透過學校資訊倫理教育課程支持，培養成熟上網經驗才能有效協助學生縮減日益嚴重的新媒體資訊倫理落差（James, 2009, 2014）。

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㈡大學生資訊倫理態度與行為落差

教育部推動九年一貫課綱開始導入資訊倫理教育時，尹玫君（2003）對即將擔任教學的師範生進行資訊倫理素養態度與行為問卷調查。問卷針對網路言論、網路隱私與網路著作權等三項資訊倫理調查。根據四所師範大學534份問卷調查發現師範生在三項資訊倫理議題態度都有不錯表現，其中又以網路隱私支持程度最高，其次是網路言論，最後是網路著作權。師範生資訊倫理實際行為也符合相關倫理行為規範，其中以網路言論的行為符合度最高、其次是網路隱私、最後是網路著作權。該研究建議師範生應該要加強網路智慧財產權觀念。

許多對大學生資訊倫理調查皆發現大學生智慧財產權的認知較薄弱與不足。莊雅茹等（2011）對大學生盜版軟體使用態度與行為進行調查，研究發現學生在盜版軟體的態度是會影響學生使用的意圖，並決定最後是否會使用盜版軟體。研究建議學校應及早建立學生智慧財產權觀念，以杜絕日後盜用軟體的行為。尹玫君（2014）對大學生電腦軟體著作權認知行為研究中，從著作權法及智慧財產法設計出36題測驗題目，大學生答對率僅達到中等程度且有待加強程度。同時在另外七題有關侵犯軟體著作權行為問題中，學生在使用未授權軟體或盜版軟體比率偏高。研究建議學校應加開有關著作權與資訊倫理課程，以防止學生日後發生網路著作權的侵權行為。

㈢不同領域的倫理態度與行為落差

學生資訊倫理態度與行為落差現象，在環保倫理與教學倫理研究有相同發現且常發生在年輕人或職場新人。Aschemann-Witzel與Niebuhr（2014）對年輕消費者在綠色環保倫理態度與行為調查中，發現年輕消費者雖支持使用綠色有機食品，但實際購買行為上因有機商品價格較高，使得年輕消費者實際購買有機食品並不踴躍。而初次擔任教學助理研究生也會因教學經驗不足產生教學倫理落差，Branstetter與Handelsman（2000）研究結果發現許多新任教學助理研究生，儘管已接受教學訓練與簽署教學承諾書要善盡教學職責，但實際教學情境中，研究生因高估自身教學能力，常在準備不足情況下貿然授課，導致無法達成原先承諾教學品質的教學倫理落差現象。

專業人員也有專業倫理落差現象，例如臨床心理師與諮商心理師從事專業服務時，在專業倫理信念與行為也有不同程度的專業倫理落差，影響社會對專業服務信任度。專業學會必須加強持續進階專業訓練、倫理教育與實務督導等多方面努力縮減專業倫理落差（李佳儒等，2012；張馥媛等，2012）；田廣曉等（2020）對中國諮商師的諮商倫理態度與倫理行為進行調查，研究發現有八項明顯專業倫理落差。倫理落差主因歸結是中西方對諮商專業倫理規範不同，導致中國諮商師專業理想與服務行為有極大落差。Mellado等（2020）對歐洲、亞

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洲和拉丁美洲等九個國家報社記者的新聞採訪專業倫理與實際採訪行為進行調查。研究顯示記者常因不同國情、政治氛圍與現實等因素影響下，很難實踐新聞專業倫理，存在高度專業新聞倫理落差。

從上述研究顯示人類道德實踐上，受個人經驗、專業訓練不足或文化國情差異，無法察覺個人倫理承諾與行為之間的倫理落差。有鑑於倫理落差現象常發生在職場新人或專業訓練不足下產生，強化經驗傳授與專業再教育常成為專業倫理教育目標。

三、研究方法

本研究方法採用重複橫斷面調查（Repeated Cross-sectional Survey），以四年為一周期對不同屆次大學生進行問卷調查，目的是長期觀察測量台灣大學生的資訊倫理落差變化，藉此間接回推學生中學時期資訊倫理教育落實成效。橫斷面調查有別於縱貫性調查，是研究者在一個特定時間點，以特定問題對受試者進行調查。這好比在特定時空對全體受試者拍攝一張照片，在不同時間經多次重複拍攝後，將照片影像疊加以顯示相片那些部分產生變化，那些影像維持不變。重複性橫斷面調查法常被政府或商業機構應用在社會長期研究，以發掘社會演變中值得關注的問題。本研究針對特定系所進行重複橫斷面調查，全系一次性問卷普查可涵蓋大一到大四學生共四年不同年代出生學生。研究為避免不同年代出生的大學生被重複調查，而影響數據代表性，因而採四年為一周期進行橫斷面調查，調查時間分別選在97、101、105、109學年進行全系問卷普查。[1]

㈠資訊倫理落差操作型定義

以往學者在資訊倫理研究上，多數對倫理態度與行為變項進行關連性分析，較少從倫理落差角度對態度與行為兩變項的差距進行測量（尹玫君，2003，2014；田廣曉等，2020；李佳儒等，2012；莊雅茹等，2011；鄧佳茜等，2008）。因此本研究參考「差距分析（Gap analysis）」法嘗試對倫理態度與倫理行為兩者的差距進行檢測，期待有不同的發現。差距分析常應用在管理學領域，對產品或服務（潛在）與實際性能兩者進行差距分析。最著名例子即是Parasuraman、Zeithaml與Berry（PZB）三位學者對於服務品質的操作型定義是以「期望服務品質」與「認知服務品質」兩者差距所發展出SERVQUAL服務品質衡量表。透過兩個變項的差距計算，可有效計算出五項服務品質差異程度

[1] 2008年（97學年）第一次調查數據曾於第一屆ICPE（International Conference on Information Capital, Property, and Ethics）國際研討會發表，2008年11月21日在世新大學資訊傳播學系舉辦。2013年（101學年）第二次調查在第五屆ICPE國際研討會（2013年12月6日）發表日本鶴見大學舉辦。 2017年（105學年）第三次調查曾在海峽兩岸資訊暨媒體素養教育學術研討會（2017年10月6日）發表，由世新大學資訊傳播學系舉辦。

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（Parasuraman et al., 1988）。本研究參考品質管理研究案例，對資訊倫理落差（information ethics gap, IEG）的定義是指大學生資訊倫理態度（ethical attitude，簡稱EA）與遵守資訊倫理行為（ethical behavior，簡稱EB）之間的差距。資訊倫理落差操作測量公式以下列表示：

資訊倫理落差（IEG）＝資訊倫理態度（EA）–資訊倫理行為（EB）

本研究為檢驗大學生是否有資訊倫理落差，建立的研究假設是資訊倫理態度（EA）與資訊倫理行為（EB）無差異性，如下列所示

H_0：資訊倫理態度（EA）=資訊倫理行為（EB）

針對大學生差異性檢定採用成對樣本*t*檢定，比較同組別EA與EB兩變數平均數值是否相等。若EA與EB兩個變數平均值並未達到顯著性差異，無法推翻虛無假設則是不存在資訊倫理落差，學生倫理承諾與實踐行為是一致。但若EA與EB兩變數平均值不等且達到顯著差異推翻虛無假設，則結論是大學生有資訊倫理落差（IEG）。若*t*值是正值則學生資訊倫理態度（EA）高於資訊倫理行為（EB），表示學生對倫理承諾高過於行為；反之當*t*值負值時，則學生倫理承諾少於倫理作為。

本研究資訊倫理模式是參考Mason（1986）的隱私（privacy）、資訊正確性（accuracy）、智慧財產權（property）及資訊使用（accessibility）四項作為研究架構。單獨保留「智慧財產權」一項，另外將隱私與資訊安全結合更名為「隱私與資訊安全維護」；將Mason資訊正確與資訊使用合併更名為「校園電腦使用」。考量學生使用資訊與課業學習考試有關係，另外增加「學術倫理」做為第四項研究變數。整體研究設計如圖1所示。

㈡資訊倫理問卷設計

資訊倫理問卷的「智慧財產權」、「隱私與資訊安全維護」、「校園電腦使用」與「學術倫理」四個項目題目設計來源，分別參考教育部與大學各項行政規範。[2] 教育部的網路規範包括「教育部校園網路使用規範」與「BBS站管理使用公約」兩項。「教育部校園網路使用規範」於2001年12月26日公告，規範內容對校園網路使用者要求尊重智慧財產權、禁止濫用網路系統、保護網路隱私權、處分等公約作為大學共同遵守原則，至今仍然適用（教育部，2001）。BBS（bulletin board system）站管理使用公約」在1995年3月6日公告，要求使用者須以實名制註冊BBS，及五項網路禁止行為與侵權法律責任（教育部，1997）。

[2] 教育部校園制訂與公告的網路使用規範屬於行政規則，作為各級學校管理與處理網路的行政指導。台灣各級學校依據教育部規範制訂各校內部的行政規範或辦法。

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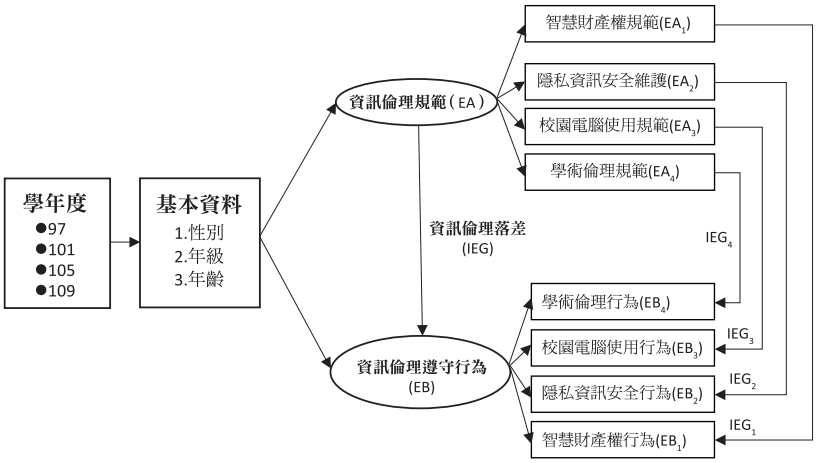
圖1 大學生資訊倫理落差研究模式



本次調查因選擇世新大學學生作為研究對象，在「校園電腦使用」與「學術倫理」題目設計，選擇世新大學的「電腦教室管理辦法」、「博、碩士班研究生學位考試規章」與「考試規則」作為問卷設計參考來源。世新大學在2008年公告的「電腦教室管理辦法」，規定學生使用教學公用電腦軟硬體的合理行為、不得佔用座位、維護教室清潔、禁止使用電腦行為、資安保護、網路違法的法律責任等（世新大學，2021）。針對學術倫理則是參考世新大學「博、碩士班研究生學位考試規章」（世新大學，2022）與「考試規則」（世新大學，2015），內容規定學位論文不得抄襲，考試不舞弊等基本學術倫理規範等。

資訊倫理問卷設計依四項研究構面1.智慧財產權規範；2.資訊隱私安全維護；3.校園電腦使用規範；4.學術倫理等進行問題設計。為測量資訊倫理落差依據構面將問卷分成資訊倫理態度與資訊倫理行為兩部分分別設計。第一部分資訊倫理態度部分參考各項法規內容共設計15題，包括智慧財產權四題、資訊隱私安全維護設計有四題、電腦使用規範5題與學術倫理兩題等。資訊倫理規範題目設計皆採正面陳述，測量尺度採李克特五等量表，從非常同意（支持態度高編碼5）到非常不同意（支持態度低編碼1）進行測量。第二部分資訊倫理行為四個研究構面各別設計5個題目共計20題。這部分問題設計為避免學生回答題目不假思索，除EB5、EB11、EB15、EB16、EB17問題採用正向行為陳述外，其餘行為問題皆採違犯資訊倫理規範的反向題目設計。例如「EB5從網路下載或複製軟體時，我對著作權宣告內容會仔細閱讀」屬於正向資訊倫理行為，而「EB1我曾經向同學借用未經授權的電腦軟體」則是違反資訊倫理規範的反向問題。這組問題亦採李克特五等量表進行測量，從非常同意（編碼為5）到非常不同意（編碼為1）。問卷回收後進行統計分析時，首先要將資訊倫理行為反向題目進行重新編碼轉換，以能與正向題目的編碼方向一致後，才進行構面整組分數計算分析或題目之間比較。反向問題經編碼轉換成正向問題後，題意也須同

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時修改為正向題意。例如「EB1我曾經向同學借用未經授權的電腦軟體」編碼轉換之後，題意同時修改為「EB1我不曾經向同學借用未經授權的電腦軟體」的正向題意。第三部分是學生基本資料，包括性別、年級與年齡等三項（詳見表1）。

表1　大學生資訊倫理落差問卷設計

資訊倫理構面	資訊倫理態度（EA）		資訊倫理行為（EB）		資料來源
智慧財產權	EA1.	應使用合法取得電腦軟體程式（教三.1）	EB1.	我曾經向同學借用未經授權的電腦軟體（教三.1）	1. 教育部校園網路使用規範（教）
	EA2.	在符合著作權法的合理使用原則下，下載與拷貝使用他人著作（教三.2）	EB2.	我曾從網路搜尋並下載被破解的電腦軟體使用（教三.1）	
	EA3.	尊重著作權下，不將受保護之著作上傳於任何網站上（教三.3）	EB3.	我曾經將別人分享給我影片再上傳到Youtube上，提供給更多的人來分享（教三.3）	
	EA4.	除非獲得合法授權，不散布受著作權法保護之著作（教三.5）	EB4.	我常轉貼有趣網路消息在自己部落格或轉信給同學知道（教三.4）	
			EB5.	從網路下載或複製軟體時，我對著作權宣告內容會仔細閱讀（教三.4）	
資訊隱私安全維護	EA5.	基於資訊安全，不應將帳號借予他人使用（教四.4）	EB6.	我曾將學校給予的帳號借給其他同學使用（教四.4）	1. 教育部校園網路使用規範（教） 2. BBS站管理使用公約（BBS）
	EA6.	網路資源有限，不應濫用以使維護網路系統正常運作（教四.7）	EB7.	我曾向其他同學借用電腦帳號使用（教四.4）	
	EA7.	尊重他人著作權，不任意轉載未經作者同意的文章（教三.4）	EB8.	我知道同學常利用網路下載大量影音資料造成網路塞車（BBS二.1-3）	
	EA8.	尊重他人隱私，不窺視他人個人資料（教六）	EB9.	我喜歡透過郵件散發群信告訴網友有趣的事情（教四.7）	
			EB10.	當拾獲來源不明的USB或光碟資料片時，我會好奇開啟檔案內容欣賞（教四.6）	
校園電腦使用	EA9.	維護電腦使用安全，遇到電腦異常應向電腦教室管理人員反應處理（電5）	EB11.	在電腦教室使用電腦遇到電腦發生異常時，會向電腦教室管理人員反應（電5）	世新大學電腦教室管理辦法（電）
	EA10.	維護電腦使用公平性，不利用物品佔用電腦座位（電7）	EB12.	當我暫時離開電腦教室時，會將物品放置座位上，以防被同學佔用座位（電7）	
	EA11.	維護電腦教室環境應保持座位清潔（電8）	EB13.	我不曾經將飲料帶進電腦教室內食用（電8）	
	EA12.	維護電腦教室有限資源，不在電腦教室玩電動遊戲（電10）	EB14.	我不曾經在電腦教室內使用電腦遊戲軟體以打發時間（電10）	
	EA13.	保持電腦教室上課品質，教室周圍應保持安靜不應喧嘩或嘻戲（電11）	EB15.	我覺得在電腦教室內大聲喧嘩或嘻戲應停止使用電腦教室權益或送獎懲委員會議處（電11）	
學術倫理	EA14.	學生個人創作、展演或書面報告、論文或技術報告均應符合學術創作相關規範（博11）	EB16.	我贊同學生的畢業作品、系統或學位論文證明有抄襲事實時，應撤銷其學分或學位的處分（博11）	1. 世新大學博、碩士班研究生學位考試規章（博） 2. 世新大學考試規則（考）
	EA15.	學生參加考試，應盡力準備誠實作答（考10）	EB17.	當我轉貼或複製網路資訊時，我會註明資訊來源或原始網址（博11）	
			EB18.	在考試中，我曾經將試卷答案提供給同學參考（考10）	
			EB19.	我撰寫報告時，不會從網路轉貼整篇文章，僅複製部分內容並予以修飾（博11）	
			EB20.	我曾經將作業答案提供同學參考或抄錄（考10）	

註：題目以括弧加註規範出處，加註方式以法規簡稱加上條文或條款序號，例如（教三.1）表示是教育部校園網路使用規範第三條第一款。

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㈢研究對象

本研究在2008年（97學年）執行第一次調查時採用立意抽樣法進行小範圍觀察，研究對象是選擇世新大學資訊傳播系學生。資傳系學生屬於文科學生，北部學生占比較高。第一次調查時以紙本問卷進行全系普查，大學部大一至大四共有245位學生，共回收184份有效問卷，回收率是75.1%。第二次調查時為減少比較數據因研究對象的學科、基本背景或興趣差異可能造成干擾因素，仍採取第一次調查抽樣標準，以世新大學資訊傳播學系學生做為對象。97學年調查學生生出介於1987~1990年，中學教育使用中小學課程標準。2013年（101學年）第二次全系普查237位學生，採紙本問卷調查共回收203份問卷，有效回收率是85.7%。2017年（105學年）進行第三次以紙本問卷調查，全系普查249位學生，回收187份有效問卷，回收率75.1%。101學年與105學年學生使用中學課綱則是九年一貫課程。在2021年（109學年）進行第四次全系普查243位學生，以線上問卷方式進行調查，共回收200份有效問卷，回收率是82.3%，最後一次調查學生開始使用十二年國教課綱。這四次問卷調查共普查974位學生，有效回收774份問卷，整體回收率79.5%（詳見表2）（教育部統計處，無日期）。

表2 歷次調查之人數與問卷回收統計表

學年度	調查時間	出生年	國教課綱類型	學生數（人）	回收數（份）	回收率（%）
97	2008	1987~1990	中小學課程標準	245	184	75.1
101	2013	1991~1995	九年一貫課程	237	203	85.7
105	2017	1996~1999	九年一貫課程	249	187	75.1
109	2021	2000~2003	十二年國教課綱	243	200	82.3
		總 計		974	774	79.5

註：本研究調查是採學年度進行調查。97學年是上學期調查，101學年度之後改在下學期進行。

㈣問卷信度檢測

依據四次調查後為確認問卷題目穩定度，針對問卷進行信度Cronbach's α檢驗。四次問卷整體信度結果，在資訊倫理態度15個題目的整體Cronbach's α是 .947屬於極佳信度。歷次調查問卷信度也都在 .84以上的良好（good）信度。第二部分倫理遵守行為20項題目，整體信度Cronbach's α值是 .812的良好信度範圍，至於歷次調查問卷信度都在 .717以上屬於可接受信度。（詳見表3）。

表3 歷次調查問卷信度統計

學年度	資訊倫理態度（EA）（n = 15）	遵守行為（EB）（n = 20）
97	.848	.772
101	.873	.717
105	.921	.740
109	.976	.792
整體信度	.947	.812

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㈤基本資料分析：

根據97、101、105、109學年度調查，世新資傳系學生女學生多於男學生。各年級人數分配比例接近，學生的年齡集中在19-21歲（詳見表4）。

表4　大學生基本資料統計分析

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
項目	個數	%	個數	%	個數	%	個數	%	個數	%
性別（*n* = 774）										
男性	82	44.6	86	42.4	70	37.4	87	43.5	325	42.0
女性	102	55.4	117	57.6	117	62.6	113	56.5	449	58.0
年級（*n* = 774）										
大一	50	27.2	45	22.1	48	25.8	53	26.5	196	25.3
大二	40	21.7	56	27.5	51	27.4	48	24.0	195	25.2
大三	51	27.7	50	24.5	40	21.5	54	27.0	195	25.2
大四	43	23.4	53	26.0	47	25.3	45	22.5	188	24.3
年齡（*n* = 774）										
18歲	39	21.2	12	6.0	11	5.9	19	9.5	81	10.5
19歲	36	19.6	40	19.9	43	23.1	41	20.5	160	20.8
20歲	43	23.4	48	23.9	48	25.8	63	31.5	202	26.2
21歲	43	23.4	49	24.4	40	21.5	45	22.5	177	23.0
22歲以上	22	12.0	52	25.9	44	23.6	32	16.0	150	19.5

四、結果與討論

本研究將資訊倫理共分成「智慧財產權」、「隱私與資訊安全維護」、「校園電腦使用」與「學術倫理」等四方面對大學生進行調查。根據97、101、105、109學年四次調查回收統計分析結果分述如下：

㈠智慧財產權資訊倫理分析

在大學生的智慧財產權規範（EA_1）問卷共有四個倫理規範問題，依據四次問卷調查總體的平均值由大至小排序，以「EA2符合著作權法的合理使用原則下，下載與拷貝使用他人著作」（*M* = 4.02, *SD* = 0.83）及「EA4除非獲得合法授權，不散布受著作權法保護之著作內容」（*M* = 4.02, *SD* = 0.89）平均值最高；另外兩題「EA3尊重著作權下，不將受保護之著作上傳於任何網站上」（*M* = 3.95, *SD* = 0.90）與「EA1應使用合法取得電腦軟體程式」（*M* = 3.87, *SD* = 0.90）平均值小於4.0。顯示大學生對智慧財產權倫理規範普遍是有支持認同。

智慧財產權倫理行為（EB_1）題目共有五題，依據平均值大小排序後以「EB3不將別人分享給我影片重複上傳Youtube上，提供給更多人來分享」（*M* = 3.81, *SD* = 1.27）平均值最高，其餘四個問題平均值皆低於3以下，包括「EB5從網路下載或複製軟體時，對著作權宣告內容會仔細閱讀」（*M* = 2.95, *SD* = 1.14）、「EB1

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不曾向同學借用未經授權的電腦軟體」（*M* = 2.70, *SD* = 1.24）、「EB4我不常轉貼有趣網路消息在自己部落格或轉信給同學知道」（*M* = 2.62, *SD* = 1.14）、「EB2不曾從網路搜尋下載被破解的電腦軟體使用」（*M* = 2.23, *SD* = 1.07）等。顯示大學生對智慧財產權遵守行為有待提升。

為檢核大學生智慧財產權是否有倫理落差（IEG_1），以智慧財產權規範（EA_1）與遵守行為（EB_1）平均值進行成對*t*檢定，97學年調查智慧財產權倫理落差值是1.32（*t* = 24.23, *p* < .001）、101學年智財權倫理落差值是1.11（*t* = 23.22, *p* < .001）、105學年智財權倫理落差值是1.20（*t* = 23.33, *p* < .001）、109學年智財權倫理落差值是0.82（*t* = 8.57, *p* < .001），顯示四個學年度調查*t*值都是正值且達到顯著性差異，表示學生的智慧財產權規範支持大於遵守行為，存在智慧財產權明顯的資訊倫理落差（詳見表5），但從遵守行為（EB1）數值逐次增大，拉近與規範的差距，使智財權倫理落差值朝向收斂改善的趨勢（詳見圖2）。

表5 智慧財產權資訊倫理統計表

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
統計值	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
智慧財產權倫理規範										
EA1 應使用合法取得電腦軟體程式	3.64	0.75	3.80	0.69	4.05	0.70	3.98	1.25	3.87	0.90
EA2 在符合著作權法的合理使用原則下，下載與拷貝使用他人著作	4.03	0.62	3.89	0.62	4.13	0.61	4.03	1.26	4.02	0.83
EA3 尊重著作權下，不將受保護之著作上傳於任何網站上	3.86	0.69	3.85	0.75	4.13	0.72	3.97	1.28	3.95	0.90
EA4 除非獲得合法授權，不散布受著作權法保護之著作	3.91	0.77	3.95	0.67	4.13	0.73	4.11	1.24	4.02	0.89
智慧財產權倫理規範（EA_1）	3.86	0.53	3.87	0.48	4.11	0.56	4.02	1.11	3.96	0.73
智慧財產權遵守行為										
EB1 我不曾向同學借用未經授權的電腦軟體	2.10	0.90	2.58	1.07	2.66	1.11	3.42	1.44	2.70	1.24
EB2 我不曾從網路搜尋下載被破解的電腦軟體使用	2.06	0.91	2.24	0.94	2.14	0.87	2.44	1.42	2.23	1.07
EB3 我不曾將別人分享給我影片再上傳到Youtube上，提供給更多的人來分享	2.86	1.32	3.75	1.11	4.06	0.97	4.51	1.10	3.81	1.27
EB4 我不常轉貼有趣網路消息在自己部落格或轉信給同學知道	2.49	1.07	2.48	1.04	2.84	1.13	2.67	1.29	2.62	1.14
EB5 從網路下載或複製軟體時，我對著作權宣告內容會仔細閱讀	3.18	1.13	2.77	1.00	2.87	1.06	2.98	1.32	2.95	1.14
智慧財產權遵守行為（EB_1）	2.54	0.53	2.76	0.59	2.91	0.56	3.20	0.79	2.86	0.67
智財權倫理資訊落差（IEG_1）	1.32	0.73	1.11	0.68	1.20	0.71	0.82	1.35	1.11	0.93
*t*值	24.43***		23.22***		23.33***		8.57***		33.05***	

***$p < .001$

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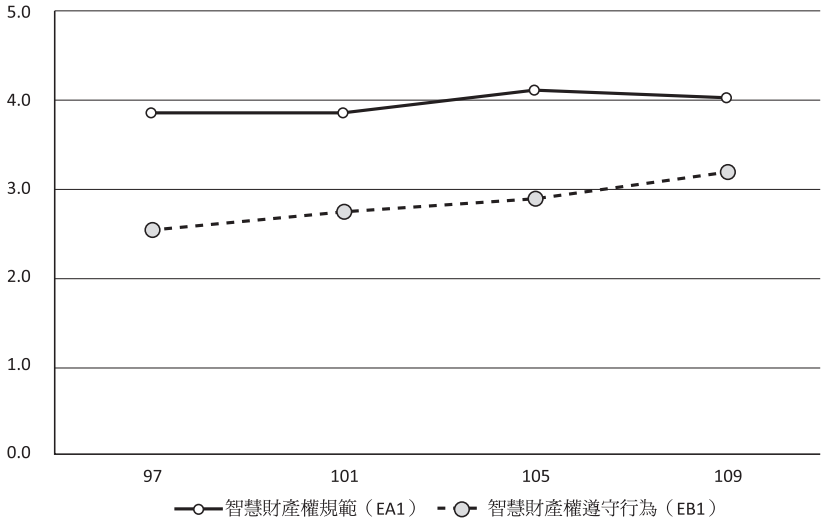
圖 2　智慧財產權倫理規範態度與遵守行為圖



㈡隱私與資訊安全統計分析

隱私與資訊安全倫理問卷包括四項倫理規範問題與五項資訊倫理行為題目。依總體學生（n = 774）平均值大小排序，四個資訊倫理態度題目以「EA8 尊重他人隱私，不窺視他人個人資料」平均值最高（M = 4.22, SD = 0.84）、其後依序是「EA5 基於資訊安全，不應將帳號借予他人使用」（M = 4.15, SD = 0.86）、「EA7 尊重他人著作權，不任意轉載未經作者同意的文章」（M = 4.13, SD = 0.83）、最低是「EA6 網路資源有限，不應濫用以使維護網路系統正常運作」（M = 4.09, SD = 0.87）。四個題目總平均值皆高於 4 分以上，顯示學生對於隱私與資安規範相當重視。

在隱私與資訊安全行為的五項題目總體平均值排序中，以「EA10 當拾獲來源不明的 USB 或光碟資料片時，我不會好奇開啟檔案內容欣賞」平均值最高（M = 3.79, SD = 1.28）、總體平均值最低題目是「EA8 我知道同學不會下載大量影音資料造成網路塞車」（M = 3.19, SD = 1.28）。五個題目的平均值皆高於 3 分以上，表示學生為保護個人隱私與資訊安全下，個人遵守隱私與資安行為意願相當高。

97 學年至 109 學年四次隱私與資訊安全倫理落差的成對樣本 t 檢定結果，除 109 學年隱私與資訊安全倫理落差未達顯著性差異外，其餘三次調查皆達到顯著性差異。97 學年隱私與資訊安全倫理落差值是 1.46（t = 17.463, p < .001）、101 學年隱私與資訊安全倫理落差值是 0.56（t = 11.35, p < .001）、105 學年隱私與資訊安全倫理落差值是 0.55（t = 9.24, p < .001）、109 學年隱私與資訊安全倫理落差值是 0.13（t = 1.32, p = .188）（詳見表 6）。顯示台灣大學生隱私與資訊安全雖有倫理落差，但資訊倫理落差快速縮小在 109 學年甚至沒有資訊倫理落差。造成隱私與資訊安全倫理落差縮減因素，並非是因學生的倫理規範支持程度降

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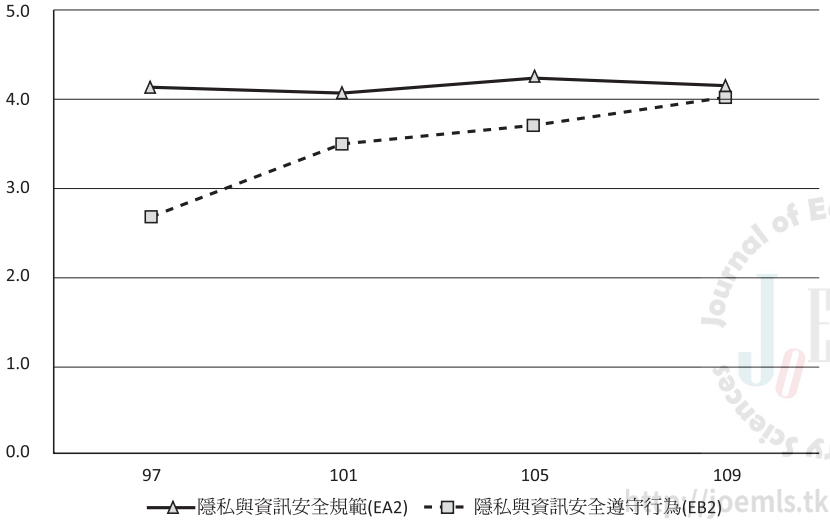
低造成，反而是大學生為維護隱私與網路安全加強個人行為實踐結果，使得資訊倫理行為（EB_2）分數上升拉近倫理態度（EA_2）差距（詳見圖3）。

表6 隱私與資訊安全統計表

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
統計值	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
隱私與資訊安全規範										
EA5 基於資訊安全，不應將帳號借予他人使用	4.23	0.76	4.06	0.72	4.22	0.66	4.11	1.19	4.15	0.86
EA6 網路資源有限，不應濫用以使維護網路系統正常運作	4.04	0.70	4.02	0.65	4.16	0.75	4.11	1.23	4.09	0.87
EA7 尊重他人著作權，不任意轉載未經作者同意的文章	4.06	0.66	3.99	0.67	4.28	0.62	4.19	1.20	4.13	0.83
EA8 尊重他人隱私，不窺視他人個人資料	4.20	0.68	4.14	0.68	4.35	0.60	4.18	1.22	4.22	0.84
隱私與資訊安全規範（EA_2）	4.13	0.48	4.06	0.52	4.25	0.54	4.15	1.13	4.15	0.73
隱私與資訊安全遵守行為										
EB6 我不曾將學校給予的帳號借給其他同學使用	2.90	1.39	3.63	1.06	3.73	1.11	4.28	1.17	3.65	1.28
EB7 我不曾向其他同學借用電腦帳號使用	2.71	1.37	3.25	1.09	3.32	1.23	3.85	1.32	3.29	1.31
EB8 我知道同學不會下載大量影音資料造成網路塞車	2.27	0.97	2.98	1.10	3.32	1.07	4.12	1.24	3.19	1.28
EB9 我不會透過郵件散發群信告訴網友有趣的事情	2.86	1.25	3.84	0.93	4.00	0.99	3.45	1.44	3.55	1.24
EB10 當拾獲來源不明的USB或光碟資料片時，我不會好奇開啟檔案內容欣賞	2.72	1.30	3.81	1.10	4.18	0.95	4.39	1.11	3.79	1.28
隱私與資訊安全遵守行為（EB_2）	2.68	0.99	3.50	0.67	3.71	0.74	4.02	0.86	3.49	0.95
隱私與資安資訊落差值（IEG_2）	1.46	1.13	0.56	0.70	0.55	0.81	0.13	1.40	0.66	1.15
t 值	17.46***		11.35***		9.24***		1.32		15.91***	

*** $p < .001$

圖3 隱私與資訊安全倫理態度與資訊倫理行為圖



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㈢校園電腦使用統計分析

校園電腦使用倫理問卷包括五項倫理規範問題與五項遵守行為問題。問卷調查整體（*n* = 774）平均值統計排序，五題學校電腦使用倫理規範以「EA11維護電腦教室環境應保持座位清潔」平均值最高（*M* = 4.30, *SD* = 0.79）、其次依序是「EA9維護電腦使用安全，遇到電腦異常應向電腦教室管理人員反應處理」（*M* = 4.20, *SD* = 0.84）、「EA13保持電腦教室上課品質，教室周圍應保持安靜不應喧嘩或嘻戲」（*M* = 4.11, *SD* = 0.84）總體平均值皆高於4分以上；總體平均值低於4以下是「EA12維護電腦教室有限資源，不在電腦教室玩電動遊戲」（*M* = 3.85, *SD* = 0.97）與「EA10維護電腦使用公平性，不利用物品佔用電腦座位」（*M* = 3.74, *SD* = 0.97）。顯示學生對學校電腦使用倫理規範對電腦教室的環境清潔、安靜與電腦運作順暢是支持，而不能玩電玩與佔位等個人限制性規範持保留意見。

校園電腦使用遵守行為五個題目總體平均值大於3以上，有「EB11在電腦教室使用電腦遇到電腦發生異常時，會向電腦教室管理人員反應」（*M* = 3.81, *SD* = 0.98）、「EB15在電腦教室內大聲喧嘩或嘻戲應停止使用電腦教室權益或送獎懲委員會議處」（*M* = 3.32, *SD* = 1.01）與「EB14不曾在電腦教室內使用電腦遊戲軟體以打發時間」（*M* = 3.20, *SD* = 1.28）；總體平均低於3以下則有兩題，「EB12暫時離開電腦教室時，不會將物品放置座位上，以防被同學佔用座位」（*M* = 2.47, *SD* = 1.05）及「EB13不曾經將飲料帶進電腦教室內食用」（*M* = 2.86, *SD* = 1.22）。顯然學生在電腦教室佔用作為與飲食問題相當普遍。

從97學年至109學年四次學校電腦使用倫理落差成對樣本進行*t*檢定結果，四次調查皆達到顯著性差異。97學年學校電腦使用倫理落差值是1.11（*t* = 25.34, *p* < .001）、101學年學校電腦使用倫理落差值是0.84（*t* = 21.32, *p* < .001）、105學年學校電腦使用倫理落差值是1.03（*t* = 22.09, *p* < .001）、109學年學校電腦使用倫理落差值是0.69（*t* = 7.88, *p* < .001）。大學生對學校電腦使用規範認同與遵循行為之間存在明顯倫理落差。尤其是在電腦教室內不佔位、飲食與玩電玩等行為落實有待進一步提倡與學生習慣養成（詳見表7與圖4）。

㈣學術倫理統計分析

學術倫理問卷包括二項倫理規範問題與五項遵守行為問題。依據問卷整體（*n* = 774）平均值統計排序，在二題倫理規範問題中以「EA15學生參加考試，應盡力準備誠實作答」平均值最高（*M* = 4.28, *SD* = 0.88）、其次是「EA14學生個人創作、展演或書面報告、論文或技術報告均應符合學術創作相關規範」（*M* = 4.21, *SD* = 0.83）總體平均值皆高於4分以上。顯示學生對學校學術倫理規範相當支持。

在五項學校學術倫理行為總體平均值高於3以上，有「EB17轉貼或複製網路資訊時，我會註明資訊來源或原始網址」（*M* = 3.96, *SD* = 0.84）、「EB16贊同學生的畢業作品、系統或學位論文證明有抄襲事實時，應撤銷其學分或學位的

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表7 校園電腦使用資訊倫理統計表

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
統計值	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
校園電腦使用倫理規範										
EA9 維護電腦使用安全，遇到電腦異常應向電腦教室管理人員反應處理	4.12	0.73	4.14	0.69	4.32	0.62	4.21	1.18	4.20	0.84
EA10 維護電腦使用公平性，不利用物品佔用電腦座位	3.74	0.89	3.54	0.78	3.86	0.83	3.84	1.27	3.74	0.97
EA11 維護電腦教室環境應保持座位清潔	4.30	0.59	4.26	0.59	4.37	0.59	4.29	1.19	4.30	0.79
EA12 維護電腦教室有限資源，不在電腦教室玩電動遊戲	3.80	0.82	3.73	0.85	3.96	0.83	3.90	1.27	3.85	0.97
EA13 保持電腦教室上課品質，教室周圍應保持安靜不應喧嘩或嘻戲	4.07	0.68	4.00	0.72	4.16	0.71	4.22	1.13	4.11	0.84
校園電腦使用倫理規範（EA_3）	4.00	0.52	3.94	0.49	4.13	0.56	4.09	1.08	4.04	0.71
校園電腦使用遵守行為										
EB11 在電腦教室使用電腦遇到電腦發生異常時，會向電腦教室管理人員反應	3.79	0.93	3.91	0.81	3.74	0.95	3.79	1.20	3.81	0.98
EB12 當我暫時離開電腦教室時，不會將物品放置座位上，以防被同學佔用座位	2.18	0.83	2.46	0.96	2.40	0.92	2.82	1.32	2.47	1.05
EB13 我不曾經將飲料帶進電腦教室內食用	2.32	1.08	2.82	1.04	3.00	1.18	3.24	1.36	2.86	1.22
EB14 我不曾在電腦教室內使用電腦遊戲軟體以打發時間	2.76	1.19	3.10	1.18	3.43	1.19	3.49	1.42	3.20	1.28
EB15 我覺得在電腦教室內大聲喧嘩或嘻戲應停止使用電腦教室權益或送獎懲委員會議處	3.42	0.86	3.20	0.83	2.95	0.96	3.68	1.18	3.32	1.01
校園電腦使用遵守行為（EB_3）	2.89	0.50	3.10	0.49	3.10	0.53	3.40	0.75	3.13	0.60
校園學校電腦使用倫理落差值（IEG_3）	1.11	0.59	0.84	0.56	1.03	0.64	0.69	1.23	0.91	0.82
*t*值	25.34***		21.32***		22.09***		7.88***		30.71***	

***$p < .001$

處分」（*M* = 3.78, *SD* = 0.97）與「EB18考試中，我不曾將試卷答案提供給同學參考」（*M* = 3.33, *SD* = 1.26）；總體平均低於3以下有兩題，「EB20不曾將作業答案提供同學參考或抄錄」（*M* = 2.68, *SD* = 1.07）及「EB19撰寫報告時，不會從網路轉貼整篇文章，僅複製部分內容並潤飾文字」（*M* = 2.41, *SD* = 1.05）。表示學生的作業抄襲或學術引用改寫能力有待加強。

從四次調查的學術倫理規範與行為成對樣本*t*檢定驗證是否有資訊倫理落差，97學年學術倫理落差值是1.27（$t = 27.35$, $p < .001$）、101學年學術倫理落差值是1.07（$t = 22.71$, $p < .001$）、105學年學術倫理落差值是1.05（$t = 20.63$, $p < .001$）、109學年學術倫理落差值是0.67（$t = 6.82$, $p < .001$），檢驗結果顯示皆達到顯著性差異，表示學生的學術倫理規範與遵守行為之間有明顯差異，但兩者的差距逐漸縮小。由於學生對學術倫理規範高度支持，歷次調查學術倫理規範

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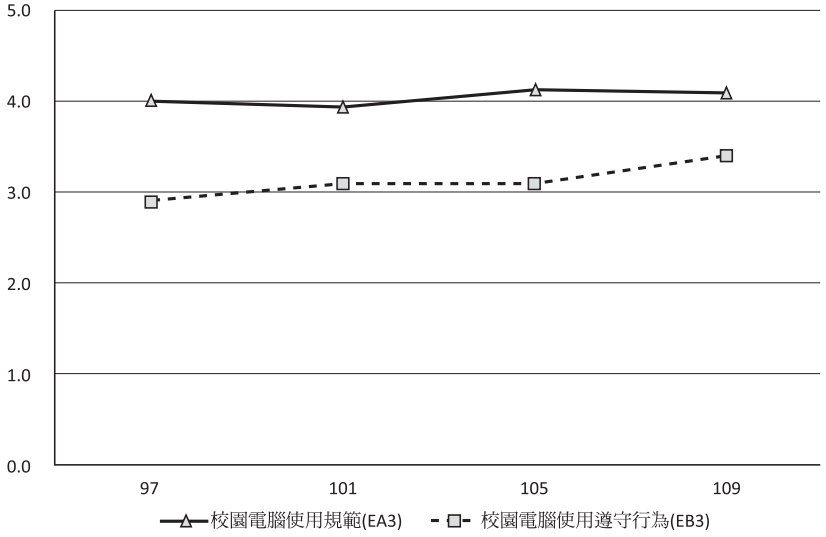
圖4　校園電腦教室使用倫理規範與遵守行為圖



平均值都是保持4以上高認同。學生學術倫理行為不斷改進提升，造成學術倫理落差逐步縮小（詳見表8與圖5）。

㈤各項資訊倫理態度與遵守行為比較

為瞭解學生在四項資訊倫理規範的重視程度，對智慧財產權、隱私與資訊安全、校園電腦使用與學術倫理規範平均值進行排序，其中以學術倫理規範整體平均值（*M* = 4.24, *SD* = 0.79）最高，其次是隱私與資訊安全規範（*M* = 4.15, *SD* = 0.73）、電腦教室使用規範（*M* = 4.04, *SD* = 0.71），最低則是智慧財產權規範（*M* = 3.96, *SD* = 0.73）。此趨勢在四次調查排序順位相當一致，顯示大學生高度重視學術倫理規範的誠實考試與學位取得的正當性（詳見表9）。智慧財產權規範在四項資訊倫理排序最末，彰顯學生對法律倫理規範較低（詳見圖6）。切合人性重視自身利益高於社會法律他律規範。

此外針對學生四項資訊倫理行為雖整體呈現逐次上升改善趨勢，但進一步對四項資訊倫理行為平均值進行排序，以隱私與資訊安全倫理行為（*M* = 3.49, *SD* = 0.95）上升趨勢最快高於其他資訊倫理，其次是學術倫理行為（*M* = 3.23, *SD* = 0.65）、校園電腦使用行為（*M* = 3.13, *SD* = 0.65），最後是智慧財產權行為（*M* = 2.86, *SD* = 0.67）（詳見表9）。學生對維護隱私與資訊安全的意願最高，在智慧財產權倫理遵守行為偏向被動消極（詳見圖7）。

以四項資訊倫理加總的學年度倫理規範總平均值（EA）與遵守行為總平均值（EB）進行觀察，四個學年度的資訊倫理態度（EA）平均值穩定維持在四級分同意程度，但倫理遵守行為（EB）平均值從97學年的2.77不符合倫理行為逐次提升到109學年的3.55接近四級分符合倫理行為，整體上升改進趨勢相當明顯。顯示學生遵守資訊倫理作為有逐步提升（詳見圖8）。

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表8 學術倫理統計表

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
統計值	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
學術倫理規範										
EA14 學生個人創作、展演或書面報告、論文或技術報告均應符合學術創作相關規範	4.11	0.70	4.17	0.66	4.29	0.61	4.28	1.20	4.21	0.83
EA15 學生參加考試，應盡力準備誠實作答	4.37	0.61	4.20	0.76	4.37	0.65	4.18	1.25	4.28	0.88
學術倫理規範（EA_4）	4.24	0.52	4.18	0.64	4.32	0.57	4.23	1.12	4.24	0.79
學術倫理遵守行為										
EB16 我贊同學生的畢業作品、系統或學位論文證明有抄襲事實時，應撤銷其學分或學位的處分	3.85	0.87	3.68	0.87	3.83	0.88	3.78	1.21	3.78	0.97
EB17 當我轉貼或複製網路資訊時，我會註明資訊來源或原始網址	3.96	0.81	3.93	0.66	3.99	0.81	3.95	1.04	3.96	0.84
EB18 在考試中，我不曾將試卷答案提供給同學參考	2.71	1.17	3.29	1.18	3.55	1.08	3.72	1.34	3.33	1.26
EB19 我撰寫報告時，不會從網路轉貼整篇文章，僅複製部分內容並潤飾文字	2.00	0.69	2.10	0.72	2.23	0.85	3.30	1.27	2.41	1.05
EB20 我不曾將作業答案提供同學參考或抄錄	2.30	0.84	2.56	0.92	2.77	1.07	3.05	1.27	2.68	1.07
學術倫理遵守行為（EB_4）	2.97	0.43	3.11	0.47	3.28	0.45	3.56	0.80	3.23	0.60
學術倫理落差值（IEG_4）	1.27	0.63	1.07	0.67	1.05	0.70	0.67	1.39	1.01	0.93
t 值	27.35***		22.71***		20.63***		6.82***		30.12***	

***$p < .001$

圖5 學術倫理規範與遵守行為趨勢圖

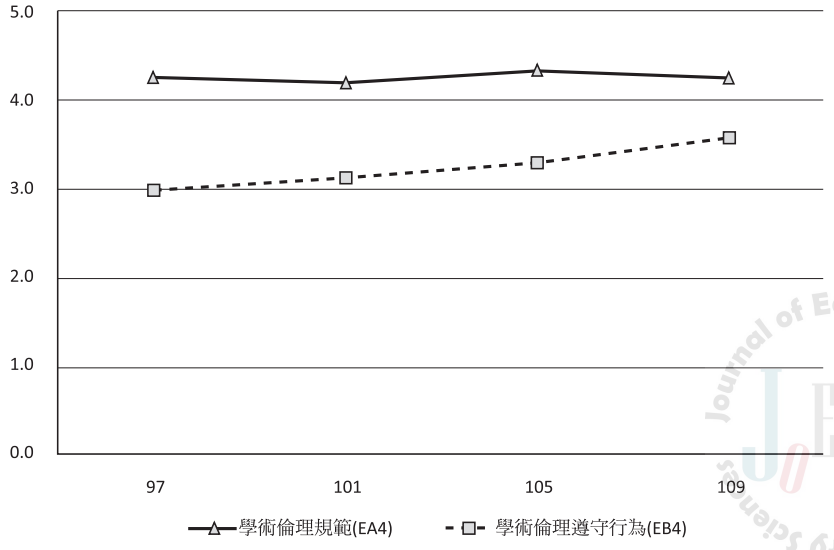

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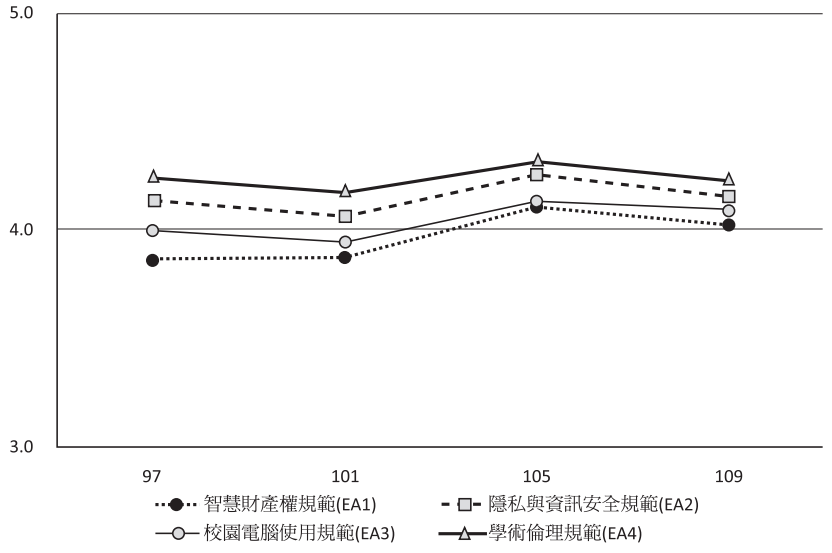
表9　資訊倫理態度與遵守行為統計

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
統計量	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
學術倫理規範（EA_4）	4.24	0.52	4.18	0.64	4.32	0.57	4.23	1.12	4.24	0.79
隱私與資訊安全規範（EA_2）	4.13	0.48	4.06	0.52	4.25	0.54	4.15	1.13	4.15	0.73
校園電腦使用規範（EA_3）	4.00	0.52	3.94	0.49	4.13	0.56	4.09	1.08	4.04	0.71
智慧財產權規範（EA_1）	3.86	0.53	3.87	0.48	4.11	0.56	4.02	1.11	3.96	0.73
資訊倫理態度（EA）	4.04	0.41	3.98	0.42	4.18	0.47	4.11	1.06	4.08	0.66
隱私與資訊安全行為（EB_2）	2.68	0.99	3.50	0.67	3.71	0.74	4.02	0.86	3.49	0.95
學術倫理行為（EB_4）	2.97	0.43	3.11	0.47	3.28	0.45	3.56	0.80	3.23	0.60
校園電腦使用行為（EB_3）	2.89	0.50	3.10	0.49	3.10	0.53	3.40	0.75	3.13	0.60
智慧財產權行為（EB_1）	2.54	0.53	2.76	0.59	2.91	0.56	3.20	0.79	2.86	0.67
資訊倫理遵守行為（EB）	2.77	0.47	3.12	0.40	3.25	0.42	3.55	0.57	3.19	0.54
資訊倫理落差（IEG）	1.27	0.59	0.86	0.44	0.93	0.55	0.56	1.17	0.89	0.79
*t*值	28.22***		27.27***		22.95***		6.73***		30.85***	

***$p < .001$

圖6　四項資訊倫理態度比較圖



㈥資訊倫理落差（IEG）統計分析

資訊倫理落差（IEG）是個人宣稱倫理規範與遵守行為之間差距的數值。當IEG數值較大時，表示倫理落差越大，知行不一的現象更為明顯；反之IEG數值越小則是倫理落差越小，趨向於知與行合一。在四項資訊倫理落差值中，大學生的隱私與資訊安全倫理落差值（IEG_2）在97學年達到最高值1.46，隨後在101學年後迅速縮小至1以下，其他三項資訊倫理落差值在101與105學年比97學年低，但數值是呈現變動趨勢，到109學年才有顯著縮減至1以下（詳見圖9）。

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圖7 四項資訊倫理遵守行為比較圖

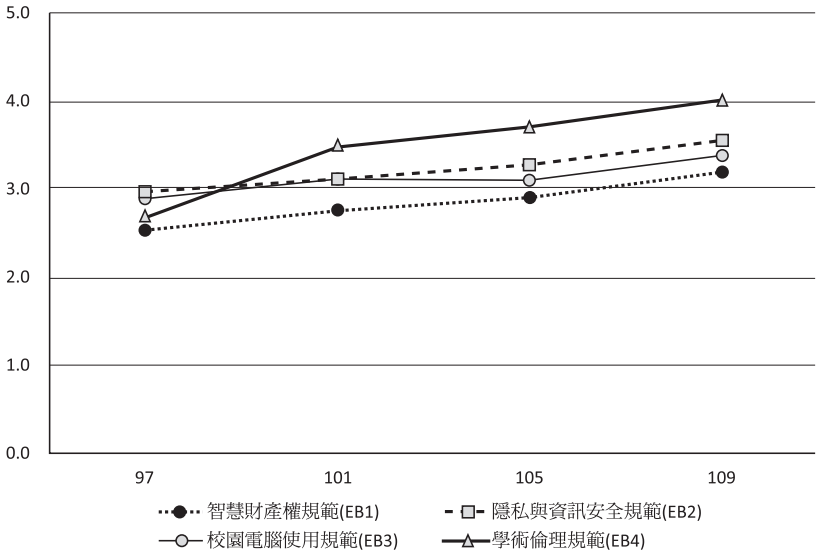
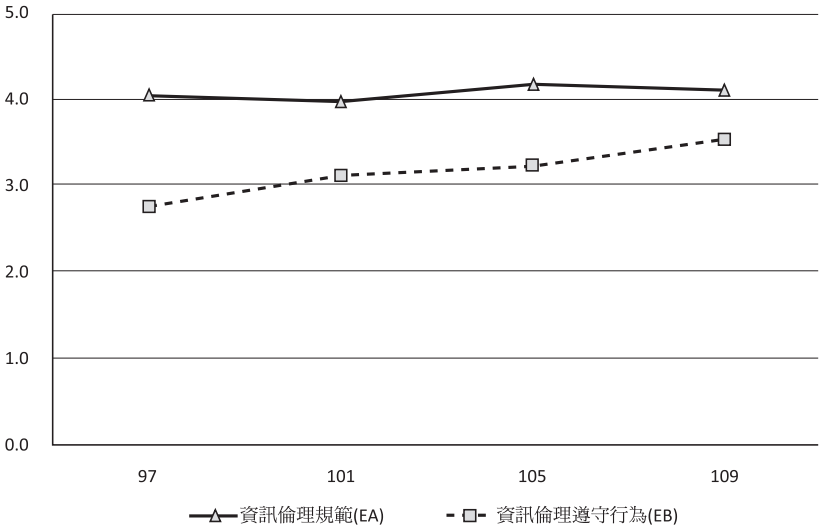


圖8 資訊倫理態度與行為趨勢圖



四個學年的資訊倫理落差值（IEG）呈現出逐步縮小趨勢。97學年資訊倫理落差值是1.27，從101學年後明顯縮漸至1以下，105學年資訊倫理落差值0.93較101學年0.86稍微上升但未超過1，109學年資訊倫理落差值下滑至0.56。大學生的資訊倫理落差快速朝著縮小改善趨勢發展（詳見表10）。從101與105學年的資訊倫理落差值相近，而在109學年快速下降變化，這一變化似乎與教育部所推行的新課綱類型有關。101與105學年調查學生都是接受九年一貫課程學生，而109學年的學生則是十二年國教新課綱學生，推斷學生資訊倫理態度行為變化與其接受的國高中課綱類型有其相關性。

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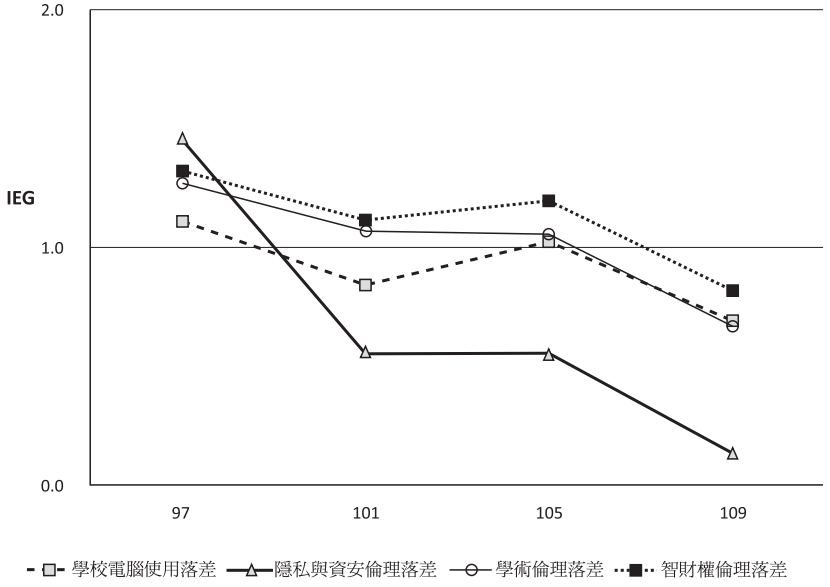
表10　資訊倫理落差統計表

學年度	97（*n* = 184）		101（*n* = 203）		105（*n* = 187）		109（*n* = 200）		總計（*n* = 774）	
資訊倫理落差	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
隱私與資安倫理落差（IEG_2）	1.46	1.13	0.56	0.70	0.55	0.81	0.13	1.40	0.66	1.15
學校電腦使用落差（IEG_3）	1.11	0.59	0.84	0.56	1.03	0.64	0.69	1.23	0.91	0.82
學術倫理落差（IEG_4）	1.27	0.63	1.07	0.67	1.05	0.70	0.67	1.39	1.01	0.93
智財權倫理落差（IEG_1）	1.32	0.73	1.11	0.68	1.20	0.71	0.82	1.35	1.11	0.93
資訊倫理落差（IEG）	1.27	0.59	0.86	0.44	0.93	0.55	0.56	1.17	0.89	0.79

圖9　不同資訊倫理落差縮減趨勢圖



五、結論建議

本研究透過對97學年、101學年、105學年及109學年進行大學生資訊倫理調查，分別從智慧財產權、隱私與資訊安全、校園電腦使用及學術倫理四個面向，對學生資訊倫理態度與行為之間的差距進行系統性分析，觀察累積學生資訊倫理落差發展趨勢。從四次問卷調查結果顯示，大學生的資訊倫理規範認同態度保持穩定不變。從四項資訊倫理規範排序，大學生對學術倫理及隱私與資訊安全規範肯定態度較積極，對於智慧財產權規範支持態度則是最低。顯示大學生更看重自身利益的個人倫理規範，較不關注維護社會秩序的法律規範。資訊倫理行為層面中，學生在隱私與資訊安全遵守行為表現優於其他三項，智慧財產權實踐行為相對較弱，顯示學生在不同資訊倫理實踐上，通常從自身安全的自利原則出發，延伸至他律性社會倫理價值，呈現價值不均的現象。此結果與尹玫君（2003）及鄧佳茜等（2008）對國中生與師範生調查結果類似。

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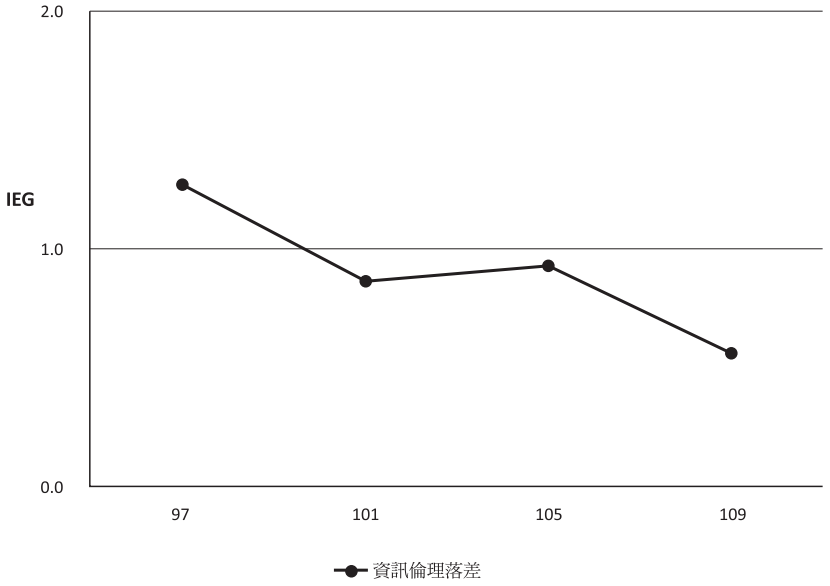
圖10 資訊倫理落差縮減趨勢圖



大學生資訊倫理規範與行為雖存在明顯資訊倫理落差，隨著國高中資訊教育加強，資訊倫理落差有逐步改善趨勢。特別109學年調查大學生的隱私與資安行為已無資訊倫理落差，顯示大學生為維護自身網路安全行為也願意配合。達到知行合一的無資訊倫理落差。此外，學生在學術倫理行為改善方面也相當明顯，學生對誠實考試和學術創作正當性有高度認同態度，也反映在近幾年對政治人物的論文抄襲取得學位反感度的社會現象。後續仍應持續教導學生正確學術引用學術倫理，杜絕學生作業抄襲行為。

大學生在校園電腦使用規範雖然認同度高，但在實踐行為仍有待加強，尤其是在電腦教室內不佔座、不飲食以及不使用遊戲等限制性規範遵守情況較為不足。智慧財產權倫理行為相較其他各項，學生有較大改進空間，例如對軟體著作權的尊重與未經授權內容的使用等。這兩項資訊倫理落差雖然顯示學生認同學校或法律有關規範，但實際行為實踐程度仍受因網路使用習慣或校園環境的影響，存在明顯的知行不一的情況。

整體而言，大學生在資訊倫理規範重視程度維持穩定的趨勢，因大學生倫理遵守行為逐步提升，使得大學生資訊倫理落差逐步縮小。本研究屬於個案研究，基於重複調查對研究樣本與穩定回收率等要求下，因此採用立意抽樣法選擇單一系所進行重複調查。研究結果無法普遍推論其他系所或不同學科。建議未來擴大調查的樣本多樣性，進行跨校或跨學科領域更廣泛蒐集數據進行調查。此外，本研究使用2008年設計問卷進行重複調查，如今檢視問卷題目部分已不符合當今網路環境及大學生使用行為，若後續進行類似研究，建議對問卷題目進行適當修訂。

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教育資料與圖書館學 學術出版倫理聲明

Version 3

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   範例2 －參考文獻（References）
   林雯瑤、邱炯友（2012）。教育資料與圖書館學四十年之書目計量分析。教育資料與圖書館學，*49*(3)，297-314。【Lin, Wen-Yau Cathy, & Chiu, Jeong-Yeou (2012). A bibliometric study of the *Journal of Educational Media & Library Sciences,* 1970-2010. *Journal of Educational Media & Library Sciences*, *49*(3), 297-314. (in Chinese)】

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教育資料與圖書館學　投稿須知

一、 教育資料與圖書館學（以下簡稱本刊）秉持學術規範與同儕評閱精神，舉凡圖書館學、資訊科學與科技、書業與出版研究等，以及符合圖書資訊學應用發展之教學科技與資訊傳播論述。均所歡迎，惟恕不刊登非本人著作之全譯稿。

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